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POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP)

Second Annual Report
For the period October 1, 2014 to September 30, 2015

DECEMBER 12, 2015

This publication was produced for review by the United States Agency for International Development. It was prepared by the Power Africa Transactions and Reforms Program.

SECOND ANNUAL REPORT

POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP)

October 1, 2014 – September 30, 2015



DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

FOREWORD

The Power Africa Transactions and Reforms Program (PATRP), implemented under USAID Contract No. AID-623-C-14-00003, is required to produce an annual report in addition to quarterly reports for each fiscal year. This is the second annual report generated by PATRP; the first documented the start-up activities of the program from May 16, 2014 to September 30, 2014.

This second annual report describes the main results achieved by the PATRP team led by Tetra Tech ES, Inc., and supported by its principal subcontractors Nexant, Inc. and BDO Risk Advisory Services, from October 1, 2014 to September 30, 2015. In addition to discussing the progress made on the program's objectives, it documents power sector trends, barriers to private sector participation and investment in the energy sector in priority Power Africa countries, and lessons learned.

The authors gratefully acknowledge the support of the United States Agency for International Development and the Power Africa Coordinator's Office for this program.

This report was made possible through the support of the American people through USAID. Its contents are the sole responsibility of Tetra Tech ES, Inc. and do not necessarily reflect the views of USAID or the United States Government.

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ACRONYMS

Acronym	Definition
AfDB	African Development Bank
AGIL	Africa Geothermal International Limited
AIP	Africa Infrastructure Program
APV	Africa Power Vision
BTG	Beyond the Grid
BWG	Budget Working Group - Power Africa
COP	Chief of Party
COR	Contracting Officer's Representative
DCA	USAID's Development Credit Authority
DCOP	Deputy Chief of Party
DFID	UK Department for International Development
DisCo	Distribution company
DO	Development Objective
DRC	Democratic Republic of Congo
E&S	Environmental and social
EAPP	East African Power Pool
ECG	Electricity Company of Ghana
EPC	Engineering, procurement and construction
ERC	Energy Regulatory Commission (Kenya)
ESIA	Environmental and social impact assessment
E&S	Environmental and social
EWURA	Tanzania Energy and Water Utilities Regulatory Authority
FiT	Feed-in tariff
GMP	Gas Master Plan
GoT	Government of Tanzania
GCSA	Government consent and support agreement
GenCo	Generating company
GIS	Geographic information system
GMSP	Grid Management Support Program
IEE	Initial environmental examination
IFI	International financial institution
IPP	Independent power producer
IR	Intermediate result
IRB	Independent Regulatory Board (EAPP)
KenGen	Kenya Electricity Generating Company
KETRACO	Kenya Electricity Transmission Company Limited
KPLC	Kenya Power and Lighting Company
kV	Kilovolt
LEC	Liberia Electricity Corporation
LNG	Liquefied natural gas
M&E	Monitoring and evaluation
MCC	Millennium Challenge Corporation
MDB	Multilateral development bank
MEM	Ministry of Energy and Minerals (Tanzania)
Mmscfd	Million standard cubic feet per day

Acronym	Definition
MOEP	Ministry of Energy and Power (Kenya)
MOP	Nigeria Federal Ministry of Power
MOPET	Ministry of Petroleum (Ghana)
MOWIE	Ministry of Water, Irrigation, and Energy (Ethiopia)
MW	Megawatt
NBET	Nigeria Bulk Electricity Trading (PLC)
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NEPAD	New Partnership for Africa's Development
OMVG	Organisation pour la Mise en Valeur du fleuve Gambie (Gambia River Basin Development Organization)
OPIC	Overseas Private Investment Corporation
PATA	Power Africa and Trade Africa
PATRP	Power Africa Transactions and Reforms Program
PATT	Power Africa Transactions Tracker
PESRM	PATRP Environmental and Social Review Methodology
PPA	Power purchase agreement
PPF	Project preparation facility
PMP	Performance monitoring plan
PPP	Public private partnership
PSP	Private sector partner
PV	Photovoltaic
QIPP	Qua Iboe Power Project
RF	Results framework
SPP	Small power producer
SSRE	Small-scale renewable energy
STTA	Short-term technical assistance
T&D	Transmission & distribution
TANESCO	Tanzania Electric Supply Company Limited
TCN	Transmission Company of Nigeria
TSO	Transmission system operator
US\$	United States dollars
USAID	United States Agency of International Development
USG	United States Government
USTDA	United States Trade and Development Agency
VRA	Volta River Authority
WAGP	West African Gas Pipeline
WAPP	West Africa Power Pool
WIAP	Women in African Power Network

EXECUTIVE SUMMARY

PATRP is a complex program with a challenging mix of issues to be addressed across the energy sectors of several sub-Saharan countries. Its complexity has required the creation of an extensive resource infrastructure spread across 10 or more countries, with more than 40 full-time staff and another 20 active short-term technical advisors and support staff. The original contract terms foresaw activities in six focus countries: Ethiopia, Kenya, Nigeria, Ghana, Liberia and Tanzania. However, the scope of the program has since expanded to include: Djibouti, regional advisors in Southern Africa (to cover Namibia, Malawi and Zambia), East Africa (to cover Uganda, Burundi and Rwanda), and Francophone West Africa (based in Senegal), and an embedded advisor within the Africa Union's New Partnership for Africa's Development.

The relocation of the PATRP office from Nairobi to Pretoria presented some initial challenges, as did the premature departure of the chief of party and deputy chief of party. These hurdles have now been overcome and PATRP is now fully staffed. The challenge moving forward will be meeting future resource demands.

The creation of PATRP's infrastructure and network of advisors has enabled the program to press forward with implementation of the contract's four key objectives:

Objective 1: PATRP developed a web-based database to house transaction information (the Power Africa Transactions Tracker or PATT). PATT is designed as a depository for all "qualified" Power Africa transactions, with a particular focus on US Government and partner Power Africa transactions. In this respect, it will allow Power Africa and its main stakeholders to monitor a transaction's progress toward financial close and ultimately its commercial operations date.

PATRP engaged a communications specialist who has been actively supporting the Power Africa Coordinator's Office. This specialist has, in direct coordination with in-country transaction advisors, regularly provided country-specific content (in the form of blog posts, narrative copy, and photography) for use on the Power Africa website.

In furtherance of Power Africa's partnership with the Africa Union, PATRP has supported the development and finalization of the New Partnership for Africa's Development's list of Africa Power Vision (APV) priority energy projects. PATRP developed a strategy and methodology to prioritize APV projects, and presented recommendations on how to operationalize this strategy. The strategy was later endorsed at the Africa Union Heads of State and Governments Orientation Committee meeting.

Objective 2: PATRP has facilitated bringing 667.5 MW of power generation projects to financial closure, and 283,320 of inferred connections. Its transaction advisors played a variety of roles in ensuring these transactions reached financial close. PATRP's transaction advisors were also pivotal in advancing the following late-stage transactions, which are forecasted to reach financial close in the next 12 months: 1) Nigeria's Azura-Edo Open Cycle Gas Power Plant (450 MW), 2) Kenya Akiira Geothermal Power Project (140 MW), 3) Ghana's Bridge Power (340 MW), 4) Ethiopia's Corbetti Geothermal Power Plant (Phase 1-20 MW), and 5) Kenya's Rumuruti solar project (40 MW).

By September 30, 2015, PATRP had developed a pipeline of over 60 active Power Africa transactions (9,749.8 MW of potential generation capacity) it is supporting. A further 60 or more transactions totaling approximately 10,000 MW of new generation capacity have also been identified and are

currently being considered for PATRP/Power Africa support. Together they represent a robust pipeline of transactions at various stage of development. Further, based on the best judgment of PATRP transaction advisors, it is anticipated that over 3,000 MW of this pipeline will reach financial close by September 30, 2016.

Objective 3: PATRP prepared Beyond the Grid (BTG) country assessments for Ethiopia, Kenya, Nigeria, Rwanda, Tanzania and Uganda. They were prepared to provide a basis for developing country action plans, including the identification of small-scale renewable energy (SSRE) projects for off-grid, mini-grid and grid-connected projects.

PATRP is supporting the Tanzanian Rural Energy Agency by deploying an embedded SSRE transaction advisor, who played an instrumental role in advancing the financial closing of the Tulila hydro (7.5 MW) transaction. His current portfolio of transactions includes several other grid-connected power plants.

PATRP initiated the programming of BTG activities for Kenya, which included verifying, validating and updating SSRE BTG projects, which are currently included in the PATT. It also initiated a work stream under which it will work with local stakeholders and mini-grid operators on drafting a legal framework that will deal with national grid integration and mini-grids. It is hoped that this activity will be replicable for other countries where mini-grids are active or planned.

The Power Africa Coordinator's Office asked PATRP to produce a report that provides an inventory of project preparation facilities (PPFs) that are relevant to early-stage project development in the energy sector. It was also to present a set of recommendations on how and where Power Africa could best focus any future support to PPFs. A draft report was shared with the Coordinator's Office and is expected to be finalized in December 2015.

PATRP worked with DFID on the annual review of the DFID-funded Solar Nigeria Program, including site visits and the collection of information from all relevant stakeholders and the Project Management Unit. Further opportunities for Power Africa/DFID collaboration were discussed, and will be explored in the upcoming 12 months.

Objective 4: PATRP provided continual technical assistance to strengthen the electricity grids of Ethiopia, Nigeria and Kenya. In Ethiopia, PATRP is working on completion of a system integration study, grid code development and system operation gap analysis. In Kenya, the focus is on preparing a regulatory impact analysis and updated draft of grid codes for the transmission and distribution systems. In Nigeria, PATRP is working on sourcing new funding arrangements with the federal government, development banks and sovereign funds for the Transmission Company of Nigeria's capital program. PATRP is also supporting capacity building and the functional unbundling of the Tanzanian transmission system operator.

On the policy work stream, PATRP prepared a series of draft reports documenting the policy interventions in Ethiopia, Nigeria, Tanzania, Ghana, and Kenya that are required to enable private sector investment in these countries. It also submitted a concept note to the Coordinator's Office on how Power Africa can leverage South Africa's experience with its renewable energy independent power project procurement program for possible replication in selected countries. PATRP will discuss the concept note and next steps with the Coordinator's Office in early 2016.

PATRP's other legal and regulatory reform activities were typically driven by an underlying transaction and the need to remove a barrier to advancing the transaction, including the development of an interim geothermal legal framework for Ethiopia.

The program's efforts to advance the development of natural gas and/or import of LNG have been principally focused on Ghana. In this respect, PATRP engaged a technical gas advisor who mobilized to post in December 2014. Since then, he (and supporting advisors) have undertaken a number of activities, including advancing the concept of reversing the current flow on the West African Gas Pipeline, allowing Ghanaian gas to be moved west to east and partially resolving the current Ghanaian gas imbalance.

PATRP prepared and submitted to USAID a proposal for establishing a dedicated debt facility for working capital so that small-scale renewable developers can scale up their projects.

Gender equality. A local expert joined PATRP as the program's gender advisor in April 2015; she developed a gender integration strategy that was approved by USAID in September. The strategy's approval has provided greater impetus for PATRP to integrate gender into its activities. The advisor has provided support to the Coordinator's Office to establish and coordinate the Women in African Power network. PATRP assisted in convening the inaugural meeting, which was held in Cape Town in June 2015 on the side lines of the Africa World Economic Forum. The advisor is also involved in PATRP's proposed Power Africa Fellowship, which will promote the participation of women in Africa's power sector by granting them fellowships to provide support to the program's transaction advisors.

Environmental compliance. When PATRP's initial environmental examination was developed in March 2015, 65 transactions listed in PATT were screened; 26 of them were subjected to PATRP's environmental and social review methodology (PESRM) checklist. Another five were subjected to the PESRM hydro supplementary checklist. All PESRM checklists were completed and approved by USAID by September 30. In all instances, PATRP worked closely with the Coordinator's Office and the Regional Environmental Office to ensure that PATRP-supported transactions presented no significant environmental risks that could not be adequately mitigated. Where available, screenings were supported by reviews of project-specific environmental and social impact assessment reports to inform appropriate mitigation actions in the context of PATRP's engagement on individual transactions.

Performance Management Plan. This plan was approved by USAID in FY 2015. Thereafter, PATRP presented performance indicator reference sheets to USAID for approval, which included descriptions, a plan for data collection, and targets and baselines.

1 . INTRODUCTION

1.1 THE PROGRAM

Two out of three people in sub-Saharan Africa — approximately 600 million people — lack access to electricity, affecting their ability to obtain quality health care, education, and economic opportunities. President Barack Obama launched Power Africa in late June 2013 to increase the number of people who have access to power throughout the region. Combining the expertise of 12 U.S. Government (USG) agencies, Power Africa is unlocking the substantial wind, solar, hydro, natural gas, biomass, and geothermal resources in the region to enhance energy security, promote economic growth, and reduce poverty. It is working with African governments, over 100 private sector partners, and other organizations to add more than 30,000 megawatts (MW) of cleaner, more efficient electricity generation in all of sub-Saharan Africa. Power Africa is also focused on increasing electricity access by adding 60 million new home and business connections.

The Power Africa Transactions and Reforms Program (PATRP) is one of the many instruments that the Power Africa Initiative has deployed in order to meet its ambitious goals. PATRP's mandate is to provide technical assistance, capacity building and transaction support services under Power Africa. While PATRP's approach centers on transaction advisory assistance across sub-Saharan Africa, it also has tasks that include traditional power sector reform, commercialization activities, and institutional support to the Power Africa Coordinator's Office. These activities are represented in the four overarching objectives set forth in PATRP's contract:

1. Institutional Support to Power Africa Coordinator's Office
2. Late-Stage Transaction Support
3. Small-Scale Projects and Rural Electrification/Mini-Grids Support
4. Regulatory and Institutional Strengthening and Policy Reform.

Objective 4 is further divided into four sub-objectives: 1) Electricity Transmission & Distribution (T&D)/Regional Trade, and Institutional Strengthening of Power Pools, 2) Policy and Regulatory Reform, 3) Natural Gas, and 4) Mobilizing Finance and Building Institutional Capacity.

1.2 OVERVIEW OF ACTIVITIES

PATRP is a complex program, which is addressing a challenging mix of issues across the energy sectors of several sub-Saharan countries. PATRP's complexity has required the creation of an extensive resource infrastructure spread across 10 or more countries, with more than 40 full-time staff and another 20 active short-term technical advisors and support staff.

The original contract terms foresaw activities in six focus countries: Ethiopia, Kenya, Nigeria, Ghana, Liberia and Tanzania. However, the scope of the program has since expanded to include Djibouti, regional advisors in Southern Africa (to cover Namibia, Malawi and Zambia), East Africa (to cover Uganda, Burundi and Rwanda), and Francophone West Africa (based in Senegal), and an embedded advisor within the Africa Union's New Partnership for Africa's Development (NEPAD). Over the past 12 months, advisors have been deployed to these positions, enabling the program to press forward toward implementing its four objectives.

Objective 1: Institutional Support to Power Africa’s Coordinator’s Office

This objective includes a broad range of outsourcing, back-office and administrative support; and the performance of other tasks that are requested by the Office of the Pretoria-based Power Africa and Trade Africa (PATA) Coordinator (the PATA Office in Washington, DC also requires support). By way of example, PATRP has recruited and provided specialized staff to USAID for budgeting, program analysis, communications and writing. PATRP has also provided meeting support (logistics, set up, etc.) and conference planning to PATA. These activities include many tasks that are defined as the work of the Coordinator’s Office and evolve as needed to support the program.

One of the most important tasks undertaken under this objective has been the development and management of the Power Africa Transaction Tracker (PATT). See Section 3 of this report for further details on PATT and its functionality.

Objective 2: Late-Stage Transaction Support

This objective has two main components: 1) the development of a pipeline of power generation projects from the concept phase up through late-stage transactions, and 2) transaction project support to bring late-stage power generation, transmission and distribution projects to financial closure. This objective seeks to shift the typical development paradigm to a transaction-centered approach that provides host-country governments in the Power Africa countries, the private sector, and donors with a focal point to galvanize collaboration around priority electricity generation, transmission and distribution transactions, with a focus on those that involve private sector participation and finance, helping to bring them to a close and on-line in an expedited manner. In the process, PATRP must simultaneously help governments drive systemic changes and fundamental reforms in the power sector that will facilitate even greater private sector involvement and investment over the long term.

Figure 1. How Do PATRP’s Advisors Advance a Transaction?

- Drafting project agreements
- Credit analysis for letters of comfort
- Prefeasibility studies
- Advising on ways of mitigating risk
- Deploying the Power Africa toolbox
- Assisting in developing power procurement tenders

PATRP’s work under this objective is led by country transaction advisors for each assisted country or region; they are responsible for leading the technical work and serving as PATRP’s country managers. Transaction advisors operate under the guidance of the senior transaction advisor, who is based in Pretoria.

Objective 3: Small-Scale Project and Rural Electrification/Mini-Grid Support

Given the constraints to expanding access through grid extension alone, Power Africa has developed an off-grid and mini-grid initiative focused on fostering clean and hybrid energy solutions in partnership with private investors and other organizations active in this space. Called “Beyond the Grid” (BTG), this initiative aims to increase generation and improve access, thereby jump starting economic growth for sub-Saharan Africa households and businesses. The BTG initiative overlays PATRP’s small-scale renewable energy (SSRE) activities under Objective 3.

SSRE projects are defined as renewable electricity projects up to 10 MW, although PATRP’s contract does foresee some flexibility on this threshold. Further, this limit is for individual project sizes and is not applicable to portfolios of smaller projects that aggregate to well above 10 MW. Only electricity

projects qualify; household energy activities for cooking, heating and small-scale rural industrial projects such as brick making, baking, and drying agro-produce are excluded.

The two principal barriers impeding the development, funding and implementation of SSRE activities are 1) project identification and development up to the point of being a bankable project, and 2) accessing finance for fully developed SSRE projects. PATRP's activities under Objective 3 are focused on reducing these barriers and, by extension, promoting a more favorable enabling environment for SSRE projects. Its assistance is challenged through the deployment of transaction advisory services in-country, to include maintaining embedded advisors within rural energy agencies, backstopped by the Pretoria-based SSRE advisor.

Objective 4: Regulatory and Institutional Strengthening and Policy Reform

The concept behind Power Africa is that catalytic transactions can be used to identify needed improvements in the enabling environment. Addressing these issues in support of a given transaction leads to a strengthened enabling environment, which ideally promotes additional market-driven development and increased investment. Energy sector reform in Africa generally requires changing a market dominated by a government monopoly and operated by an inefficient state-owned utility. Successful reform results from a continuous process of improvement backed by a powerful champion to accomplish, among other things:

- Cost-reflective tariffs
- Profitable and sustainable commercial operations
- Ability to effectively manage new capacity additions/system expansions
- Effective, independent and transparent legal and regulatory mechanisms
- Sound load forecasting and system planning
- Procurement policies and practices aligned with international best practices
- Effective capital construction planning and management processes
- Enabling energy policy and market-oriented energy laws
- Independent, effective and transparent regulation.

The power sector in each country is unique, with differing needs and problems. Each country requires interventions tailored to its own specific needs. In this vein, PATRP's policy work stream has initially involved the compilation of a comprehensive inventory of policy interventions/actions required to enable private sector investment in five key countries. Follow-on activities based on these recommendations are anticipated in 2016.

Objective 4 also includes technical assistance for the gas sectors of Ghana and Nigeria, electricity transmission and distribution, and cross-border trade. In this context, PATRP has been active in grid management work in Ethiopia and Kenya, supporting them in moving to a more economic and reliable power system that makes better use of natural resources. It has also been engaged in capacity building and targeted assistance within the East Africa Power Pool (EAPP), the Tanzania Electric Supply Company, and the Nigerian transmission system operator (TCN) by providing financial, legal/regulatory and technical subject matter experts.

1.3 WORK ORDER SYSTEM

All PATRP activities are carried out under work orders. Each work order is agreed with USAID and has a scope of work, staffing plan and budget. Monitoring mechanisms ensure the team stays abreast of changing conditions, with timely information, to adapt activities. In support of this framework, PATRP is developing a work order project management tool that contains an inventory of each work order, together with its respective deliverables, approved budgets and amounts invoiced, and a description of activities to be performed. It is expected that the work order tracker will be fully operational in January 2016. At that point, the work order management tool will enable real-time reporting on the status of work orders.

The sum of all work order budgets equals the total resources committed under PATRP. This enables the PATRP team to link deliverables to objectives and specific work orders. Similarly, it enables the evaluation of the amount of resources committed to objectives, sub-objectives and deliverables. In addition, each work order is assigned to fit under one of PATRP's four objectives and has performance indicators in line with its Performance Monitoring Plan.

The current inventory of PATRP work orders is outlined in Table 1.

Table 1. Inventory of Work Orders (as of September 30, 2015)

Work Order	Work Order Title	USAID Region / Country Mission	Status
000-ZA-00	Support to PATA Coordinators Office (Pretoria)	ZA - Pretoria - Coordinator's Office	Active
001-US-01	Communications Support - Washington	US - Washington - PATA DC	Active
002-EA-01	Geothermal Road Show	EA - East Africa, Nairobi - USAID/East Africa	Completed
003-US-02	Private Sector Relationship Management	US - Washington - PATA DC	Active
004-ZA-01	Africa Country Diagnostic	ZA - Pretoria - Coordinator's Office	Completed
005-EA-02	Workshop and Assessment in Djibouti	EA - East Africa, Nairobi - USAID/East Africa	Completed
006-EA-03	Geothermal Strategy	EA - East Africa, Nairobi - USAID/East Africa	Active
007-EA-04	Scoping Mission to East Africa Power Pool on Placement of Transaction Advisor	EA - East Africa, Addis Ababa - USAID/East Africa	Completed
008-WA-01	Scoping Mission to West Africa on Placement of Regional Transaction Advisor	WA - West Africa, Accra - USAID/West Africa	Completed
009-GH-05	Ghana PSP Study Tour	GH - Accra - USAID/Ghana	Completed
010-EA-05	Eastern Africa Regional Geothermal Advisor	EA - East Africa, Addis Ababa - USAID/East Africa	Active
011-KE-06	Kenya Dandora Waste-to-Energy Pre-Feasibility Study	KE - Nairobi - USAID/Kenya	Completed
012-LI-01	Senior Local Energy Advisor Liberia (acting transaction advisor)	LI - Monrovia - USAID/Liberia	Active
013-LI-02	Loss Reduction Program for Liberian Electricity Corporation	LI - Monrovia - USAID/Liberia	Proposed
014-WA-02	West Africa Regional Transaction Advisor	WA - West Africa, Accra - USAID/West Africa	Active

Table 1. Inventory of Work Orders (as of September 30, 2015)

Work Order	Work Order Title	USAID Region / Country Mission	Status
015-EA-06	East Africa Regional Transaction Advisor	EA - East Africa, Addis Ababa - USAID/East Africa	Active
016-ZA-02	Budget Working Group and PATRP Planning Sessions	ZA - Pretoria - Coordinator's Office	Completed
017-US-03	Policy Support	US - Washington - PATA DC	Active
018-ZA-03	Support to Africa Power Vision – NEPAD - Phase I	ZA - Pretoria - Coordinator's Office	Completed
019-GH-02	Gas Sector Transaction Advisor (Gas to Power) - Ghana	GH - Accra - USAID/Ghana	Inactive
020-ZA-04	Advancing Gender Equality in Power Africa	ZA - Pretoria - Coordinator's Office	Active
021-NI-03	Nigeria Local Technical Advisors	NI - Abuja - USAID/Nigeria	Active
022-GH-06	Assistance to Ministry of Petroleum	GH - Accra - USAID/Ghana	Active
023-GH-07	Assistance to Ministry of Power	GH - Accra - USAID/Ghana	Active
024-ZA-05	GIS-Based Africa Generation & Transmission Mapping	ZA - Pretoria - Coordinator's Office	Proposed
025-ET-01	Country Transaction Advisor Ethiopia	ET - Addis Ababa - USAID/Ethiopia	Active
026-GH-01	Country Transaction Advisor Ghana	GH - Accra - USAID/Ghana	Active
027-KE-02	Country Transaction Advisor Kenya	KE - Nairobi - USAID/Kenya	Active
028-NI-02	Technical Advisor to Transmission Company of Nigeria	NI - Abuja - USAID/Nigeria	Active
029-KE-01	Senior Local Energy Advisor Kenya	KE - Nairobi - USAID/Kenya	Active
030-TZ-02	Technical Advisor to Rural Energy Agency of Tanzania	TZ - Dar es Salaam - USAID/Tanzania	Active
031-NI-01	Country Transaction Advisor Nigeria	NI - Abuja - USAID/Nigeria	Active
032-EA-07	Transaction Advisor Djibouti	EA - East Africa, Nairobi - USAID/East Africa	Active
033-EA-07	Advisory to East Africa Power Pool Phase 2	EA - East Africa, Addis Ababa - USAID/East Africa	Completed
034-US-00	Support to PATA Coordinator's Office (Washington)	US - Washington - PATA DC (Coordinator's Office)	Active
035-NI-04	Nigeria Technical Assistance to Nigeria Bulk Electricity Trading and Transmission Company of Nigeria	NI - Abuja - USAID/Nigeria	Active
036-US-04	Attendance at Power Africa Summit Washington	US - Washington - PATA DC	Completed
037-US-05	Technical Assistance to Beyond the Grid	US - Washington - PATA DC	Active
038-ET-02	Ethiopia Scoping Mission (GMSP)	ET - Addis Ababa - USAID/Ethiopia	Completed
039-KE-07	Joint Development Agreement for the Geothermal Development Company	KE - Nairobi - USAID/Kenya	Active
040-EA-08	Assistance to East Africa Power Pool and Independent Regulatory Board	EA - East Africa, Addis Ababa - USAID/East Africa	Active
041-WA-03	Grid Management Support Program (GMSP) for Senegal	WA - West Africa, Accra - USAID/West Africa	Proposed
042-ET-03	Ethiopia Corbetti Geothermal	ET - Addis Ababa - USAID/Ethiopia	Active

Table 1. Inventory of Work Orders (as of September 30, 2015)

Work Order	Work Order Title	USAID Region / Country Mission	Status
043-ET-04	GMSP Ethiopia	ET - Addis Ababa - USAID/Ethiopia	Active
044-KE-08	Kenya Grid Management Study Code II	KE - Nairobi - USAID/Kenya	Active
045-WA-04	West Africa Forum for Clean Energy Financing – 2	WA - West Africa, Accra - USAID/West Africa	Active
046-TZ-01	Transaction Advisor at TANESCO - Phases I & II	TZ - Dar es Salaam - USAID/Tanzania	Active
047-TZ-03	TANESCO Transmission System Organization	TZ - Dar es Salaam - USAID/Tanzania	Active
048-ZA-06	Transaction Advisor NEPAD	ZA - Pretoria - Coordinator's Office	Active
049-ET-05	Renewable Energy Transaction Advisor for Ethiopia	ET - Addis Ababa - USAID/Ethiopia	Proposed
050-CI-01	Transaction Advisor for African Development Bank	CI - Ivory Coast - USAID/Côte d'Ivoire	Proposed
051-KE-09	Kenya Renewable Tariff Assessment	EA - East Africa, Nairobi - USAID/East Africa	Proposed

1.4 RESULTS

Power Africa's approach is to keep track of various transactions, and count them once they reach financial close, providing Power Africa made a contribution toward moving them forward.

At present, the current goal in PATRP's contract is 8 GW of new capacity to be in various stages of development by the end of the third contract year (May 15, 2017). Of these 8 GW, at least 2,000 MW should reach financial closure, 3,000 MW should be in the late-stage pipeline, with the remaining 3,000 MW in the early-mid stage of the pipeline. Further, as stated in Section F.3 of the PATRP contract, PATRP is expected to directly contribute to the Power Africa Initiative by leveraging investment of at least \$2.5 billion in public and private funds for power sector projects by end of the third contract year and facilitate at least 500,000 household and commercial connections.

PATRP is also required to track performance against a number of other indicators, which are derived from the Power Africa Monitoring & Evaluation Plan, to include capacity building efforts and laws and policies developed. Further details are outlined in Section 5 of this report.

2 . PROJECT ORGANIZATION

2.1 OVERVIEW

PATRP's team is drawn from several contractors, principally Tetra Tech, ES, Inc. (as prime contractor), Nexant, Inc., and BDO Risk Advisory Services (as principal subcontractors), with a smaller contingent being provided by SNV and Energy and Security Group. Table 2 summarizes the principal team members' responsibilities.

Table 2. Core PATRP Team Members

Position	Responsibility
Chief of Party (COP)	Program leadership + environmental + communications
Deputy COP	Program leadership + M&E
Assistant COP	Administrative functions + daily operations
Senior transaction advisor (TA)	Leadership of TAs + technical assistance to USAID
SSRE Advisor	Identify and develop SSRE
Policy and Institutional advisor	Power sector governance and policy-related goals
Transaction advisors	Maximize PATRP objectives in their respective countries/regions
Short-term technical advisors	Provide specialized technical skills
Communication manager	Manage multiple communications/outreach channels
M&E specialist	Establish M&E system, manage M&E activities for PATRP
Project Management Unit	Set up a program office + databases, define and maintain standards for program management
Environmental specialist	Environmental and social review of, or due diligence on, transactions
Gender specialist	Promote gender opportunities

PATRP's principal office is located in Pretoria, South Africa and is staffed with the program's leadership—the COP, DCOP, the senior transaction advisor, small-scale renewable energy advisor, and policy and institutional advisor – along with the M&E team, environmental, budget, and administrative staff that support the program, and field staff as well as the Power Africa Coordinator's Office. The majority of the positions based in the Pretoria office are filled by South Africans or nationals from other African countries.

Beyond program leadership, the team's organization is based on a matrix approach that distributes decision making to the country or regional level where appropriate. Indeed, the basic building block of PATRP is the country/regional unit, in which each country or regional transaction advisor is responsible for a business unit within the program, typically supported by local national and short-term technical assistance

(STTA) advisors on an as-needed basis. This gives the on-the-ground team the flexibility to develop plans tailored to the needs in each country that are culturally appropriate and adaptable to the realities on the ground.

2.2 CHALLENGES

The composition of PATRP's staff has changed significantly from the personnel presented in the original proposal. The principal staffing challenge was the departure of the COP and DCOP within the first six months of the program. In response, and pending the appointment of a replacement COP and

DCOP, senior management from the prime contractor (Tetra Tech) and principal subcontractor (Nexant) deployed their home office managers to Pretoria to fill the void. The candidate for COP, who was presented to USAID in January, was ultimately approved to start working in Pretoria as acting COP in late April. He was confirmed as COP at the end of June and mobilized to post in July. The candidate for DCOP, who was also presented to USAID in January, was approved in March and mobilized in early May.



Pretoria Team, October 2015 (photograph: J. Craig)

There have also been challenges in filling certain transaction advisory positions. For instance, the initial scope of work did not call for a country transaction advisor for Kenya, as the senior transaction advisor was originally to be based in Kenya and serve as the country's transaction advisor. Given the importance of the Kenya program to Power Africa, a number of candidates were proposed before a final selection was made. There was also a prolonged period before PATRP appointed a transaction advisor in Tanzania, which delayed PATRP's ability to focus on, and advance transactions in, that country. A transaction advisor

was deployed to Tanzania in September 2015, which has resulted in a full complement of transaction advisors.

2.3 CURRENT PROGRAM ORGANIZATION

Given the significant changes in staff composition over the last 12 months, a new staffing plan was shared with USAID in September 2015. It provided an overview of the program's staffing together with a breakdown of the roles and responsibilities of staff members and organizational structure.

Figure 1. Highest-Level of PATRP Team Organization

Figure 1 shows the highest level of the program's organization. Given the dynamic nature of the program, it is likely that future adjustments will be needed – hence, it is anticipated that the staffing plan will be updated from time to time during the life of the program.

3 . SUMMARY OF PROGRESS

A number of important accomplishments were made this year based on the recommendations, assistance and support PATRP provided. These are summarized below for each objective.

3.1 OBJECTIVE 1: INSTITUTIONAL SUPPORT

3.1.1 The Transactions Tracker



Figure 2. Overview of PATT Contents

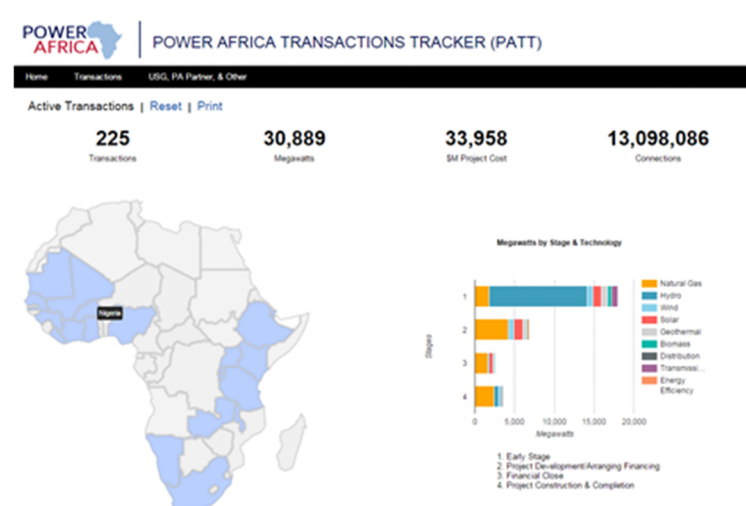
PATRP's contract foresees that within six months of the award, PATRP would present to USAID for its review a system to track and benchmark key energy and power sector issues, and Power Africa targets, goals and objectives, and government and private sector Power Africa commitments.

In this respect, the power generation transactions being tracked by PATRP and activities of the broader Power Africa initiative were initially collated and listed using Excel spreadsheets or PowerPoint documents. It became clear that this system was not sustainable given the increasing number of transactions and challenges in accessing relevant data. In response, PATRP developed a web-based database to house transaction information (the Power Africa Transactions Tracker or PATT). PATT's key features include (see also Figure 1 for overview):

- Tracking metrics, which have been built in to measure transaction status at any given point
- Country / region
- Type: generation, transmission, distribution, energy efficiency, mini-grid, etc.
- Technology: wind, solar, hydro, biomass, gas, etc.
- Size: MW
- Access/connections
- Transaction stages using a Gantt chart: project timelines and key milestones
- Health indicators: measures of project progress
- Comments: critical constraints and how they are being addressed
- Environmental and social impacts
- Policy and regulatory constraints and improvements.

As a cloud-based system, PATT allows: 1) accessibility from anywhere in the world as long as users are connected to the internet, 2) increased collaboration, which allows for simultaneous synchronization and updates of information in real time, 3) automatic software updates and easier software integration with other systems, and 4) centralized document control and access.

Figure 3. Screenshot of Proposed PATT Public Site



PATT is designed to be a depository for all “qualified” Power Africa transactions, with a particular focus on USG and partner Power Africa transactions. In this respect, it assists Power Africa and its main stakeholders in monitoring progress toward financial close and ultimately the commercial operations date COD of a transaction. The database allows for easier collaboration, has the capacity for a variety of analyses on key program information in any format required for decision making and reporting, and allows for the identification of critical issues or

constraints so that remedial action can be taken in a timely fashion where necessary.

Access levels and user groups have been defined for PATT and a protocol developed. It is important to note that because PATT includes certain information that Power Africa partners may share on the condition that the information is “business confidential,” or because certain notations by USG officials may be protected by the Deliberative Process Privilege, certain fields may be restricted and in some cases, information may need to be redacted before it is shared more widely.

PATRP has conducted in-person and web-based training sessions on PATT for transaction advisors, the Power Africa Coordinator’s Office and a number of USG agencies (e.g., US Trade and Development Agency (USTDA), Overseas Private Investment Corporation (OPIC), US Department of Commerce, Millennium Challenge Corporation (MCC), USAID’s Development Credit Authority (DCA)). Further, given the significant interest in PATT and its utility for the broader Power Africa initiative, the Coordinator’s Office requested the design of a PATT mobile app that will interpret and display the data from the PATT system. In response, PATRP is developing a solution that will provide not only a mobile app but also a new web interface that will allow greater flexibility for development and management. Figure 3 provides a snapshot of the new web interface. A section of the new web interface will also be available to the general public and accessible through the Power Africa web portal. It is expected that this new configuration will be activated by the end of 2015.

PATT tracks activities in addition to transactions. An “activity” is a package of technical assistance provided to build capacity or eliminate obstacles or risks to improve the power sector to make it more attractive for transactions. In addition, PATRP is currently developing an enabling environment tracker that will be associated with PATT. It will be dedicated to tracking issues and Power Africa goals pertinent to the legal, policy, and regulatory frameworks of the focus countries. It is expected that the enabling environment tracker will be operational in December 2015.

3.1.2 Power Africa Website and Quarterly Newsletter

According to its contract, PATRP is to provide USAID with material to update the Power Africa website and for the quarterly Power Africa newsletter. PATRP thus engaged a communications specialist who has been actively supporting the Coordinator’s Office for the past 12 months. In direct coordination

with in-country transaction advisors, this specialist regularly provided country-specific content (in the form of blog posts, narrative copy, and photography) for use on the Power Africa website. Much of this content reported on progress that transaction advisors and partners had made in Power Africa target countries. PATRP's communications specialist also provided regular (bi-weekly) input to the Power Africa Coordinator's Office and USAID's communications director, including updates from transaction advisors, news clips and news analysis, which were used in the Coordinator's monthly field reports and Power Africa's quarterly newsletter. He also assisted with the editorial content, graphic design, and assembly of the Power Africa newsletter.

PATRP also supported the Coordinator's Office in preparing investment briefs on the electricity sectors of the six original focus countries together with a variety of promotional and outreach materials that were used at conferences and Power Africa events (see Figures 4 and 5).

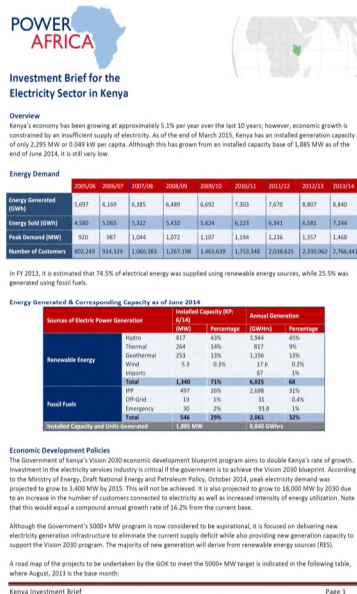


Figure 4. Kenya Investment Brief



Figure 5. Flier for Africa Utility Week (Cape Town, May 2015)

3.1.3 Annual Power Africa Work Planning Meeting

PATRP provided logistical and administrative support to USAID's Budget Working Group (BWG) meeting in Johannesburg from October 27-30, 2014. This overlapped with PATRP's orientation and onboarding process, which began on October 26 and resumed on October 29 through November 1. The BWG is an annual planning session convened by the Coordinator's Office with attendance and participation from various Power Africa representatives from Washington, DC and USAID country Missions. The programs, which included many joint sessions between USAID staff and PATRP team members, addressed lessons learned over the prior year and proposed action plans for the coming year. Based on informal feedback from participants, the program was well received. The most popular events included the Thursday sessions, where each Mission had a conference room of its own at BDO's Johannesburg office. That enabled each Mission to invite those they wished to meet for a discussion of their plans going forward and other issues, as appropriate.

3.1.4 Partnerships

One of the cornerstones of Power Africa is its emphasis on partnerships. The Initiative itself represents a partnership among USG agencies, together with the World Bank Group, the African Development Bank, Swedish International Development Cooperation Agency, the United Nations' Sustainable Energy for All (SE4All) initiative, the African Union's NEPAD, the European Commission and approximately 100 public and private sector entities, including several African governments.

On September 11, 2014, Power Africa signed a memorandum of understanding with NEPAD to collaborate and accelerate the development of energy projects throughout the continent. In furtherance of this partnership, PATRP was tasked with supporting the development and finalization of NEPAD's list of Africa Power Vision (APV) priority energy projects. PATRP developed a strategy and methodology to prioritize APV projects, and presented recommendations on how to operationalize this strategy. After completing the report (Figure 6), PATRP delivered it to the NEPAD Africa Union offices in Addis Ababa on January 26, 2015. The APV was later endorsed by the Heads of State and Governments Orientation Committee meeting. As a follow-on activity, PATRP has seconded a transaction advisor to NEPAD, who is tasked with accelerating the development and implementation of APV energy projects.



Figure 6. NEPAD Report Cover

In addition, PATRP provided resources and personnel to support Power Africa as it on-boarded a range of private sector players across the power delivery value chain to help Power Africa and sub-Saharan African nations meet their ambitious power sector goals. Power Africa partners include developers/sponsors, debt and equity providers, transmission and distribution companies, engineering, procurement and construction (EPC) companies, equipment suppliers, and foundations and energy associations. In particular, PATRP has provided 1) technical support to aid the development of a customer relationship management system to track details on each partner and their progress towards commitment, 2) personnel to act as relationship managers to provide an interface between Power Africa and private sector partners, and 3) due diligence services on prospective partners.

3.2 OBJECTIVE 2: LATE-STAGE TRANSACTION SUPPORT (PROJECTS GREATER THAN 10 MW)

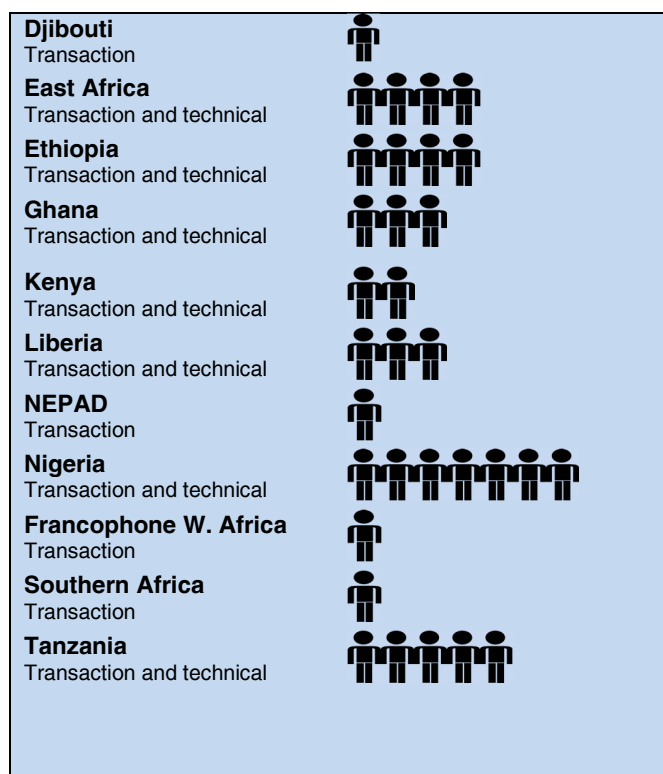
The principal tool to advance this objective has been the deployment of PATRP transaction advisors throughout sub-Saharan Africa. In this respect, the past 12 months have witnessed the creation of an extensive network of transaction and technical advisors encompassing 10 countries/regions. Figure 7 provides a breakdown of the locations of these advisors, some of whom are resident and others deployed for short-term technical assistance.

Initially, PATRP envisioned its transaction advisors as playing an investment banker-type of role, offering objective advice to deals in order to get them across the finish line. In certain cases, however, Power Africa teams concluded that these advisors could be more effective if they were embedded within government ministries as a means of leveling the playing field with well-informed and well-funded developers. Accordingly, certain PATRP advisors work within government ministries (e.g., Ghana) or national utilities (e.g., Tanzania's Rural Energy Agency, TCN, and TANESCO). The project's

West Africa (Francophone) regional transaction advisor is based out of the World Bank Offices in Dakar, for the purpose of strengthening the relationship with the World Bank as a Power Africa partner and identifying possible opportunities for collaboration on priority energy projects. Similarly, PATRP has proposed providing a transaction advisor who will be embedded within the African Development Bank's (AfDB) Infrastructure Finance and Public Private Partnership's Division of the Private Sector Department in Abidjan, Cote d'Ivoire. This advisor would serve as the key link between the Bank (as a Power Africa partner) and the Power Africa Initiative to attract incremental capital investment into clean, renewable energy projects. A transaction advisor has been identified and is slated for deployment at the beginning of 2016.

To instill a consistent approach among all field-based advisors, PATRP developed a handbook to articulate certain policies, procedures, and best practices that all Power Africa transaction advisors should follow in their work. The handbook includes a 1) common scope of work for transaction advisors, 2) policies and procedures for transaction advisors, including independence of advice, USG policies, public comments and statements, travel, meetings, gifts and entertainment, confidentiality agreements, weekly reporting, and annual performance metrics, and 3) potential USG interventions to help unblock obstacles to private investment in the power sector, including direct interventions to assist specific power projects, capacity building for host governments, techniques to mitigate project risk, credit enhancement techniques, and a discussion of how power projects typically attract finance.

Figure 7. Breakdown of Long- and Short-Term Field-Based Advisors



Reference is also made to the Power Africa toolbox¹. The handbook was finalized in Q2 2015, but is a living document and will be updated as needed.

To be eligible for Power Africa assistance, a transaction must, in the first instance, be a "qualified" transaction.² In addition, it must satisfy the requirements set forth in the Qualified Transactions Assistance Tool, which represents a detailed checklist for identifying high-priority, transformative, replicable transactions with broad-ranging local and regional impacts, for Power Africa assistance. A good qualified transaction candidate for assistance is also one that is at a stage where it has made enough achievements to inspire confidence (or soon can) that it will reach financial close and, ultimately, result in incremental MW, increased financial assistance, additional access points/connections, and/or increased efficiency/reliability.

¹ The Power Africa Toolbox provides a quick yet comprehensive view of the tools & resources Power Africa uses to drive deals & facilitate investment

² All power projects in sub-Saharan Africa (excluding: i) coal-fired power plants or coal gasification power sector investments, and ii) nuclear power sector investments) that have a reasonable likelihood of being completed in the future are qualified transactions, are eligible for Power Africa support.

3.2.1 Bringing to Financial Closure New Generation Projects above 10 MW Capacity

Table 3. Transactions Closed by PATRP

Transaction Name	Country	MWs	Inferred
CenPower Kpone Gas	Ghana	350	196,166
Lake Turkana Wind	Kenya	310	59,454
Tulila Hydro ³	Tanzania	7.5	27,700

The financial close of a transaction represents one of the critical project milestones that PATRP tracks. Financial close refers to when developers/sponsors on a transaction have concluded with lenders a complete package of permanent financing on a non-recourse, limited recourse, or balance sheet basis, and any condition precedent to the initial drawdown of funds has either been satisfied by the developers/sponsors or waived by the banks, and the developers/sponsors are in a position to draw down on the financing being made available.

Since its inception, PATRP facilitated bringing **667.5 MW** of power generation projects to financial closure, and **283,320** of inferred connections⁴ (Table 3). PATRP transaction advisors played a variety of roles in ensuring these transactions reached financial close. For instance, in the Tanzania's Tulila hydro transaction, PATRP's transaction advisor assisted by drafting the support letters issued by the Ministry of Energy and Minerals and TANESCO to the lenders, ultimately clearing one of the final hurdles to reaching financial close. On the CenPower Kpone Gas project, the transaction advisor provided transaction support to the off-taker by reviewing final changes to the power purchase agreement (PPA) and addressing any requests from lenders prior to closing. PATRP's advisory team also provided grid management support to the Lake Turkana Wind transaction to ensure that its intermittent generation could be successfully integrated into the network.

A further 220 MW of new incremental generation capacity was commissioned this year by the Nigerian Transcorp Ughelli power-gas. Much of the work for this transaction had been completed by USAID-funded programs that pre-dated PATRP.

PATRP transaction advisors were also pivotal in advancing the following late-stage transactions, which are forecasted to reach financial close in 2016.

Nigeria's Azura-Edo Open Cycle Gas Power Plant (450 MW/inferred connections: 509,230): PATRP worked with the USG to facilitate President Buhari's decision to waive compliance with a Presidential circular for the Azura project. Certain provisions of the circular were blocking the final acceptance of the financial securitization by the lenders.

Kenya Akiira Geothermal Power Project (140 MW/inferred connections: 80,550): PATRP supported this project by expediting negotiations of the power purchase agreement and grid connection, and in talking to Kenya



Akiira site (Photograph: J. Works)

³ The transaction reached financial close at the end of FY 2014; however, it was not previously reported.

⁴ Inferred connections numbers are calculated using statistical data from International Energy Association (IEA) national energy balances to define electricity consumption characteristics for each country, such as national residential share of total electricity consumption.

Power, the Ministry of Energy and Petroleum (MOEP) and the PPP Unit to fast-track the government letter of support.

Ghana's Bridge Power (340 MW of "gas fast power"/inferred connections: 191,682): PATRP supported ECG (the utility/off-taker) in negotiating the commercial terms and conditions, tariff and financial model for the transaction, focusing on the key transaction documents.



Corbetti PPA signing – July 2015 (Photograph: N.Girma)

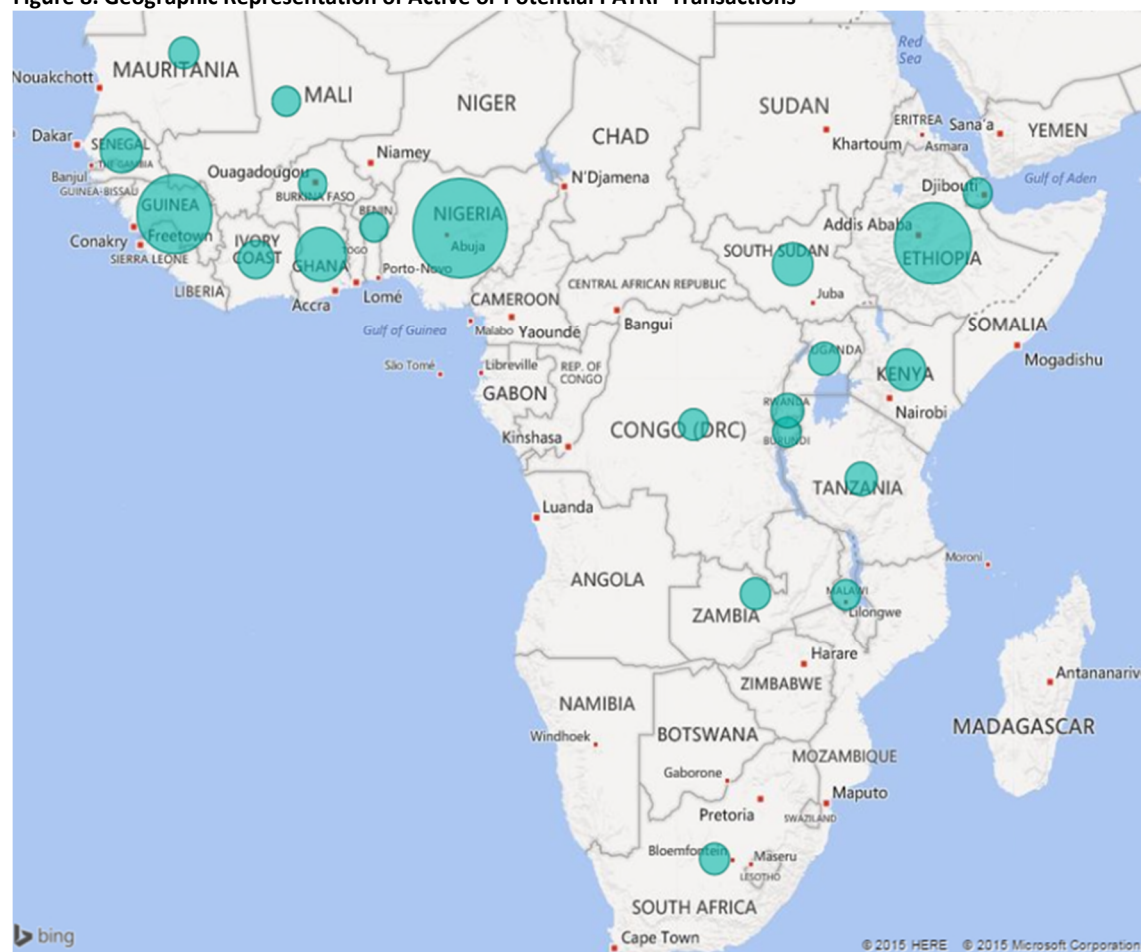
Ethiopia's Corbetti Geothermal Power Plant (Phase 1 – 20 MW/inferred connections: 14,763): The parties signed a PPA for the first 500 MW of the project in July 2015. PATRP supported the reaching of this milestone by providing the Government of Ethiopia with: 1) access to international legal representation in the negotiations – in partnership with the AfDB, 2) legal, financial and technical input on the terms and conditions of the Corbetti PPA/implementation agreement and general assistance to their negotiating team, 3) technical and legal input on the proposed legal framework for geothermal activities, and 4) an assessment of the resource potential of Corbetti.

Kenya's Rumuruti Solar Project (40 MW/inferred connections: 5,114): PATRP has supported this project in expediting approval by the feed-in tariff (FIT) Committee of its feasibility and grid connection studies, by arranging for the Committee to convene a special meeting instead of waiting for the regular meeting, in getting earlier dates from Kenya Power for PPA negotiations, securing a 25-year tenure of the PPA instead of the usual 20 years, and facilitating KETRACO's construction of the Nanyuki-Rumuruti 132 kV transmission line and 132/33 kV substation at Rumuruti.

Appendix A outlines additional information on active or potential PATRP generation transactions under "Country Summaries."

Figure 8 presents a geographic representation of these transactions.

Figure 8. Geographic Representation of Active or Potential PATRP Transactions



3.2.2 Pipeline of Generation Transactions

By September 30, 2015, PATRP was able to develop a pipeline of over **60** active Power Africa transactions with **9749.8 MW** of potential generation capacity that it is supporting. A further **60** or more transactions totaling approximately **10,000 MW** of new generation capacity were also identified and are currently being considered for PATRP/Power Africa support. Together they represent a robust pipeline of transactions at various stage of development – as illustrated in Figure 9 (which includes projects that have reached financial close or have been commissioned). Further, based on the best judgment of the PATRP transaction advisors, it is anticipated that over 3,000 MW of this pipeline will reach financial close by September 30, 2016 (see Table 4).

Figure 9. PATRP Pipeline by Stage

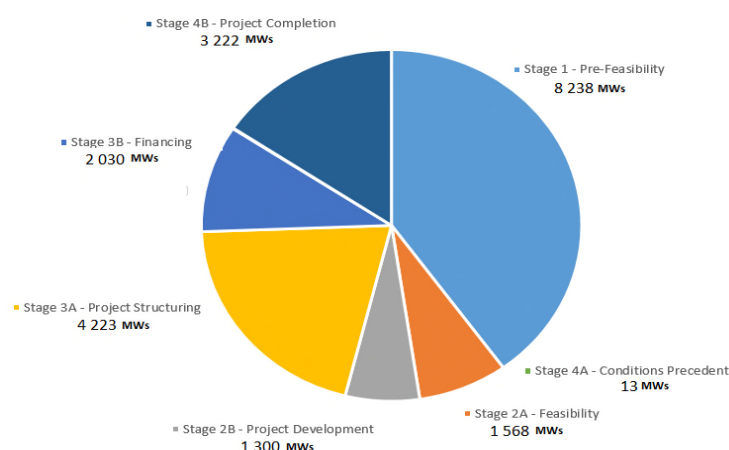


Table 4. PATRP Active Transactions Forecasted to Reach Financial Close by September 30, 2016

Country	Transaction	MW	Country	Transaction	MW
Ghana	Bridge (Fast) Power / Ghana 300—Gas	340	Nigeria	PA Solar	65
Ethiopia	Corbetti Geothermal Phase 1—Geothermal	20	Nigeria	CP —Gas	495
Nigeria	Azura / Edo—Gas	450	Senegal	Taiba N'Diaye—Wind	151.8
Nigeria	DSC / M—Solar	100	Tanzania	Kigoma—Solar	5
Nigeria	IA Power—Gas	250	Tanzania	Biomass	1
Kenya	Akiira--Phase 1—Geothermal	70	Kenya	Menengai—Geothermal	105
Kenya	Kesses I—Solar	40	Kenya	Kipeto—Wind	100
Kenya	Grid Connected Hydro	7.8	Tanzania	Mapembasi / Njombe—Hydro	10
Kenya	Tindinyo—Hydro	1.5	Ghana	Upwind Ayitepa —Wind	225
Kenya	Rumuruti—Solar	40	Ghana	Solar	50
Nigeria	NSC —Solar	100	Ghana	APSD--Biomass	60
Senegal	Senergy 1—Solar	29	Kenya	Geothermal	70
Tanzania	Kiwira River —Hydro	10	Nigeria	Gas	150
			Nigeria	Solar	150
			Total: 3096.1 MW		

3.2.3 Clean Energy Development

Over 60% (approximately 12,000 MW) of PATRP's transaction pipeline is drawn from renewable energy sources. At commercial operation, these projects would result in 17,279,428 tons of CO₂ equivalent avoided annually. Table 5 shows this pipeline by technology.

Table 5. PATRP Renewable Energy Pipeline

Pipeline/Technology	MW	tCO _{2e} /annum
Wind	1226.8	641,687.73
Solar	1914.5	1,136,609.21
Geothermal	1515	497,514.90
Biomass	61	1,023,807
Hydro	7389.6	13,979,809.29
Total	12,106.9	17,279,428

Clean energy projects expected to reach commercial operations in FY 2016 under PATRP include: Cummins Baringo biomass (Kenya) – 8.4 MW; Tulila hydro (Tanzania) – 7.5 MW; Kainji Jebba hydro – 96 MW (Nigeria) and Kaini Kainji hydro – 290 MW (Nigeria) with estimated 697,713 tCO_{2e} avoided emissions annually.

3.3 OBJECTIVE 3: SMALL-SCALE PROJECTS AND RURAL ELECTRIFICATION/MINI-GRIDS SUPPORT

This work stream is led by the Pretoria-based SSRE advisor, who also backstops the work being done by field-based transaction advisors. To meet the initial priority under Objective 3, PATRP prepared BTG country assessments for Ethiopia, Kenya, Nigeria, Rwanda, Tanzania and Uganda to provide a basis for developing country action plans, including the identification of SSRE projects for off-grid, mini-grid and grid-connected projects. PATRP anticipates accessing this valuable resource on an increasing basis as it deploys technical assistance to advance BTG transactions.

3.3.1 Tanzania

PATRP emphasizes support, where appropriate, to existing rural electrification agencies to improve planning and facilitate medium- and low-voltage grid extensions, as well as updates, upgrades, and new installations of mini-grids and isolated systems. Thus, the Tanzanian Rural Energy Agency is continuously supported by an embedded SSRE transaction advisor. He assisted in drafting the support letters issued by the Ministry of Energy and Minerals and TANESCO to the lenders on the Tulila hydro



Tulila HPP (Photograph: S. Wasira)

(7.5 MW) transaction, ultimately clearing one of the final hurdles to reaching financial close. Since there was no mechanism that explicitly deals with the commercial risk associated with TANESCO, the support letters provided additional comfort to the lenders and project insurer, the Swiss Government's export risk insurance – SERV. The lender, Credit Suisse, mandated AIL Structured Finance Ltd in Zurich to structure the financing, the modeling and the coordination among numerous parties. The PATRP

transaction advisor effectively became the program's on-the-ground point person. His current portfolio includes several other grid-connected power plants: 1) Kiwira hydro-10 MW, 2) biomass-1 MW, which will use rice husks to generate and connect 120 households, 3) Mapembasi/Njombe hydro-10 MW, and 4) Kigoma solar-5 MW.

3.3.2 Kenya

PATRP initiated the programming of BTG activities for Kenya, which included:

- Verifying, validating and updating SSRE BTG projects, which are currently included in the PATT. In total, 26 projects from Kenya are included in the PATT.
- Screening projects that have secured FiTs from Kenya's Rural Energy Agency and selecting a number that could be considered for Power Africa support. PATRP is now reaching out to the project owners and developers with a view to outlining possible Power Africa support.
- Identifying bundled small-scale generation projects that could benefit from Power Africa assistance. The initial focus is the solar mini-grid on Lake Victoria, which represents a potential bundle of up to 8 MW. PATRP is now following up with the developer.

In recent years, individual solar micro-grids have been successfully piloted in East Africa and there is significant interest in upscaling these efforts. For example, bundled solar micro grid rural electrification projects covering 100 villages in Western Kenya, each connecting at least 200 rural households and small businesses (which are not now connected to the national grid) are under development. However, one of the barriers faced by companies wishing to engage in these initiatives is securing financing, particularly if the local legal and regulatory framework is silent on what happens when a national grid integrates and absorbs a micro-grid. In this respect, PATRP has initiated a work stream in which it will work with local stakeholders and mini-grid operators on drafting a legal framework to deal with national grid encroachment and mini-grids. It is hoped that this activity will be replicable in other countries where mini-grids are active or planned.

3.3.3 Project Preparation Facilities Report

Early-stage development represents a critical part of the transaction cycle. When a project moves from a conceptual stage through completion of feasibility studies, the undertaking is costly, lengthy and complex, with an elevated risk of failure. Project risk profiles begin to improve as the project development matures. These challenges have long been recognized by the donor community and development financial institutions. In response, and in order to partly mitigate these challenges, they have established dedicated project preparation facilities (PPFs), which are intended to guarantee a sustainable supply of bankable, investment-ready energy generation projects. In brief, they can be defined as entities/funds that provide technical and financial support to early-stage project preparation activities (with greater emphasis on the financial aspect) with an overarching goal to develop a project to a point where it attracts sufficient interest from other investors.

In this direction, the Coordinator's Office asked PATRP to produce a report that 1) provides an inventory of PPFs that are relevant to early-stage project development in the energy sector and evaluate them against criteria that illustrate their effectiveness and 2) using the report's conclusions, present a set of recommendations to the Power Africa Coordinator's Office on how and where it could best focus any future support to PPFs. PATRP's draft report identified 34 PPFs active in the sub-Saharan Africa energy sector, 11 of which focus on the early stage of the project cycle. The majority of PPFs tend to focus on the later stages, which leads to a dearth of bankable projects to be pursued by investors. Thus, to create a robust and diverse pipeline of sustainable investment-ready energy infrastructure projects, there is a clear need to accelerate and expand investment in well-designed PPFs focusing on early-stage support. A significant number of existing entities have yet to disburse funds due to the limited number of experienced project developers (those with the needed technical

and commercial experience, and risk capital) to lead to greater numbers of bankable projects. It is expected that the report will be finalized in December 2015.

3.3.4 Collaboration with DFID - Nigeria

The Solar Nigeria Program is funded by the UK's Department for International Development (DFID) from the International Climate Fund, with coordination and targeted technical assistance provided by Adam Smith International. The program will run from 2014-2020, and is designed to directly improve access to clean, reliable, sustainable and affordable electricity in Nigeria by scaling up the public and private markets for off-grid solar power.

In furtherance of the partnership between Power Africa and DFID, in September 2015 PATRP's SSRE advisor traveled to Nigeria, where he performed an annual review of the Solar Nigeria Program, including site visits (two clinics, two schools) and collected information from all relevant stakeholders and the Project Management Unit. He presented a summary of the results to DFID Nigeria, followed by the completion of the formal review documentation, including log frames. Eventually, the outcome of the review will be formatted and posted publicly on the DFID website. Further opportunities for Power Africa/DFID collaboration were discussed, and will be explored in 2016.

3.3.5 Working Capital

PATRP prepared and submitted to USAID a proposal for establishing a dedicated debt facility for working capital so that small-scale renewable energy developers can scale up their projects. This is addressed in more detail under Objective 4D below.

3.4 OBJECTIVE 4: REGULATORY AND INSTITUTIONAL STRENGTHENING AND POLICY REFORM

Objective 4 is composed of four sub-objectives:

3.4.1 Objective 4-A: Electricity Transmission & Distribution/Regional Trade, and Institutional Strengthening of Power Pools

The indicative actions and performance indicators for this sub-objective are: 1) the facilitation of at least 500,000 household and commercial connections, 2) the reduction of technical, commercial, and collection losses (aggregate) by an average of 10 percentage points in at least one high-loss focus country (with aggregate losses greater than 30%), and 3) increasing the number of countries engaged in cross-border energy trade by at least six. To this end, PATRP has engaged in the following activities over the past 12 months:

3.4.1.1 EAPP-IRB

Initially, it was suggested that PATRP consider assigning a resident advisor to the East Africa Power Pool (EAPP). However, based on a definitional mission conducted in October 2014 and subsequent discussions with USAID and other stakeholders, it was concluded that it would be more effective if Power Africa's assistance was focused on supporting specific transactions, such as the Ethiopia-Kenya-Tanzania connector, and projects initiated by the Nile Equatorial Lakes subsidiary Action Program

(NELSAP). A new work order for advisory assistance to EAPP was submitted to USAID in February 2015, and subsequently approved.

One of the key focuses of the approved EAPP work order is to support the reliable interconnection of EAPP countries to facilitate power trading and the establishment of regional power market trading mechanisms. The objectives of PATRP's assistance are to 1) provide EAPP and its members with transaction support to accelerate the establishment of a regional power market in Eastern Africa and 2) to assist the EAPP Independent Regulatory Board (IRB) to be an effective regional regulator for the power market in Eastern Africa by ensuring that interconnected operation is reliable, a bilateral trading mechanism is developed, and transmission wheeling and access are available. In this respect, PATRP's work builds on the previous activities performed by USAID's Africa Infrastructure Program (AIP).

To date, the drafting of an Ethiopia-Kenya-Tanzania wheeling agreement and related tariff have progressed well, with most of the power flow study completed and a draft provided to Kenya Electricity Transmission Company Limited (KETRACO). Terms of reference were developed to provide consulting assistance to KETRACO on its development of a revenue requirement, and a meeting was

held with the EAPP and its development partners to coordinate the work in this area going forward.



Gap Analysis workshop, Addis (Photograph: L. Dow)

On August 5-6, 2015, PATRP held a two-day workshop in Addis Ababa, with nine EAPP member countries to review the requirements of the EAPP Interconnection Code and teach participants how to use and apply the Gap Analysis Tool. The Tool will be used to help countries perform gap analyses on their utility's compliance with the Code. The

meeting was well received by the participants, many of whom expressed a strong desire to delve deeper into the interconnection code itself. A new Power Africa EAPP Interconnection Code Reliability Program, which will soon be launched by PATRP with the IRB, will provide such support and help bring countries into compliance with the Code.

3.4.1.2 Kenya Grid Management

This activity builds on AIP's previous work to strengthen Kenya's power systems to be ready for the integration of new generation (conventional and renewables) sources and for sustainable and efficient operation of the National Grid for the delivery of quality and reliable electrical services to consumers. In this vein, PATRP is assisting Kenya Power (KPLC), KETRACO, Kenya Electricity Generating Company (KenGen), and the Energy Regulatory Commission (ERC) to manage system expansion and the integration of renewable energy projects under development as part of the national power grid, and working towards the finalization and adoption of a national grid code that is consistent with international best practices.

The PATRP team was in Kenya during August and September to undertake a regulatory impact assessment of the Transmission and Distribution Codes. The team met with ERC, KenGen, KPLC, KETRACO and multiple generators to discuss the grid code, and to solicit feedback on the regulatory impact assessment. It developed a detailed timeline of activities and milestones with the ERC for

completion of the regulatory impact assessment and the gazetting of the grid code. It also conducted an in-depth review and discussion with the World Bank of the work completed under Grid Management Support Program (GMSP) Phase I, discussed ongoing work under GMSP Phase II, and received feedback and suggestions. The team clarified and resolved all comments received from the Bank on the regulatory impact assessment.

3.4.1.3 Ethiopia Grid Management

The activities in this work stream, which were approved in May 2015, are designed to support and strengthen Ethiopia's power system for the integration of new generation (conventional and renewables) and for sustainable and efficient operation of the national power grid for the delivery of quality and reliable electrical services to consumers. One of the key deliverables includes a system operation gap analysis, which assesses existing systems and procedures for operating the systems in order to identify the operational requirements that would help support and strengthen Ethiopia's power grid for the integration of new generation (conventional and renewables) sources.

To date, the PATRP team has met with stakeholders to discuss the GMSP, confirm stakeholder buy-in, confirm active stakeholder participation, coordinate activities, and begin information and data gathering.

3.4.1.4 Nigeria - Assistance to the Transmission Company of Nigeria (TCN)

PATRP has been supporting TCN since January 2015 with the provision of a full-time transaction advisor supported by a team of financial, legal and technical experts. Their work includes the prioritization of the capital program, financial planning, tariffs, EPC contracts and new procurements.

TCN has a backlog of over 100 projects in various stages of completion. Many of them have stalled and made no progress in over a year, mainly due to a funding gap as the federal budget allocation for TCN has been reduced in recent years. PATRP has been helping TCN unlock stopgap funding for nine of the highest-priority projects that are facing contractor demobilization. PATRP advisors are part of an interdepartmental team that was convened by the TCN managing director to grapple with the funding issue and negotiate terms with contractors that will allow the projects to proceed. The team has negotiated term sheets with three of the contractors whose projects are nearly completed. The term sheets spell out the conditions precedent for the contractors to complete the projects. Recently, PATRP was instrumental in getting TCN to reprioritize the use of an existing AfDB loan facility so that some of the highest-priority stalled projects are covered. As a result of these efforts, it is very likely that funds will be disbursed to complete as many as five of the selected highest-priority projects.

Other PATRP activities at TCN have included: 1) in response to a request from the Office of the Vice President of Nigeria to USAID/Nigeria, PATRP developed an options paper for TCN with a view to what comes after the Manitoba Hydro management contract. The paper lays out the advantages and disadvantages associated with the various structural arrangements, including management contract, concession and privatization. The paper was delivered to USAID/Nigeria on August 21 and 2) working on evacuation arrangements for proposed new generation, for instance, engaging with Azura Energy and Nigeria Infrastructure Advisory Facility advisors to review the status of construction of the ongoing Benin North-Oshogbo 330 kV double-circuit transmission line, which is needed to evacuate generation from the Azura IPP to the national grid.

3.4.1.5 Tanzania – TANESCO Transmission

The main objective of this activity is to support the restructuring of TANESCO within the framework of implementing the Tanzania Electricity Supply Industry Reform Strategy and Roadmap. PATRP is supporting the establishment and institutional development of an independent transmission system operator (TSO). During a definitional mission to TANESCO, PATRP began developing a work plan in May 2015. While in Dar es Salaam, the team met with TANESCO, USAID, MCC and other stakeholders (EWURA, MEM). In addition to developing the work plan, the team began gathering data to support this work stream. The work plan was submitted to USAID and TANESCO at the end of June and was approved in early August. In line with the advisory team's request, TANESCO's executive management has formally established the Transmission System Organization Working Group to work closely with the advisory team for the duration of the work order. In addition, TANESCO formed a steering committee to provide policy guidance on the establishment of a fully operational TSO.

An expanded team (to include the new resident project manager) returned to Dar es Salaam at the end of August to begin implementing the work plan.

3.4.1.6 Liberia – LEC Loss Reduction

The Liberia Energy Corporation (LEC) reported total losses of 35% in July 2015, up from approximately 25% prior to the Ebola crisis. A contributing factor is thought to be theft from the prepayment meters. Of the total of 35,000 meters registered, only about 21,000 customers made purchases in July, and it is presumed that many of the 14,000 quiescent meters have been tampered. PATRP was asked to characterize the sources of transmission and distribution energy losses, identify how they may result from technical and non-technical sources, and develop a plan for reducing them to a level consistent with international utility practice using both technological and administrative measures. Such a loss reduction plan would propose investments needed to achieve the goal, a timetable for execution, and indicators for monitoring both the progress of the plan's implementation and of the plan and its outcomes in terms of improved efficiency. PATRP proposed a team of experts to undertake this activity, who are expected to deploy to Liberia in November 2015.

3.4.1.7 Regional Interconnectors

PATRP's East Africa transaction advisor conducted a survey of all EAPP interconnectors to assess the needs for soft engineering interventions (e.g. wheeling agreements, tariff studies and cross border PPAs) by USAID and others to commercialize all ongoing projects. A database and individual maps of all interconnectors incorporating the results of the survey were created, as was a "slide deck" displaying the status of all projects. PATRP began to evaluate the need for studies to be conducted in order to bring the transmission lines under construction to commercial operation. In addition, it assessed the future funding requirements needed for NELSAP to complete existing projects, in conjunction with reviewing the organization's future strategy, structure and funding needs.

3.4.2 Sub-Objective 4-B: Policy and Regulatory Reform

PATRP's work under this sub-objective included:

3.4.2.1 Policy Reform Work

The policy work stream, which was approved in July 2015, entails the: 1) compilation of an inventory of policy interventions necessary in Ethiopia, Nigeria, Tanzania, Ghana, and Kenya. PATRP is

conducting desk studies to compile an inventory of all policy interventions/actions required to enable private sector investment in the countries determined by USAID, 2) in-country due diligence on a needs basis. PATRP policy advisors will then go to selected countries where analysis beyond desk studies is deemed necessary by the USAID Mission or activity manager. The purpose of the field-based due diligence will be to affirm/ prioritize the policy interventions identified. Following the in-country due diligence exercise, the inventory will be duly updated, and 3) in compiling the inventory, PATRP will identify and make recommendations on opportunities for technical assistance (not limited to Power Africa support), as well as redundancies, gaps, or inefficiencies in existing donor support. The majority of this task was completed by the end of the reporting period with the inventory policy interventions largely in final form.

Figure 10 gives an indicative list of recommended policy interventions. The final reports and list of interventions was delivered to USAID at the beginning of October 2015.

3.4.2.2 IPP Tendering Procedures (Competitive Procurement)

Objective 4B calls for the development and implementation of model IPP tendering procedures. In this respect, there are two PATRP activities worth noting over the past 12 months:

First, the development of competitive, well organized, transparent and attractive procurement opportunities for developers and investors alike, forms an important step towards the achievement of Power Africa's goals. In this context, South Africa's Renewable Energy Independent Power Producer Procurement Program provides a valuable lesson for Power Africa to draw on and potentially replicate in suitable Power Africa countries. The results of the South African program in terms of pricing have been noteworthy – for instance, a 55% tariff drop for onshore wind and a 76% tariff drop for solar PV from Rounds 1 to 4.⁵ Onshore wind and solar PV account for about 91% of the procured capacity to date.⁶ In these circumstances, in September 2015 PATRP submitted to the Coordinator's Office a concept note on how Power Africa can leverage South Africa's experience for possible replication in selected countries. PATRP will discuss the concept note and next steps with the Coordinator's Office early in 2016.

⁵ Blue Horizon Energy Consulting Services, Insight – Price Decreases for South Africa's Utility-scale Renewable Energy Procurement Program from 2011-2015 (Indexed April 2014 Values), 30 April 2015 (<http://bluehorizon.energy/insights-news/>)

⁶ Ibid.

Figure 10. Recommended Policy Interventions

Kenya

The Government of Kenya (Ministry of Energy and Petroleum, National Treasury, Energy Regulatory Commission) and Kenya Power should prioritize the importance of an adequate letter of support towards the financing of new generation projects.

Ethiopia

The Government of Ethiopia should promulgate legislation to: 1) govern regulatory approval of PPAs, 2) make provision for feed-in tariffs for smaller renewable energy projects and competitive tenders for larger projects, and 3) exploit geothermal energy.

Tanzania

The Government of Tanzania should avoid the practice of entertaining unsolicited proposals for generation projects and instead enforce a practice that all solicited and unsolicited bids go through a competitive bidding process.

Nigeria

The Nigerian Electricity Regulatory Commission should develop institutional capacity to achieve transparent, credible and predictable determinations of cost-reflective tariffs for the distribution and transmission sectors.

Ghana

The Government of Ghana should prioritize the development of a credit support package to create bankable IPP transactions (including use of the government consent and support agreement and where possible, some combination of other credit enhancement tools (letters of credit, partial risk guarantees, insurance, etc.).

Second, Kenya will likely eliminate its current feed-in tariff program in the next 6 to 12 months. Its intention is to replace it with a competitive procurement/auction. In this context, there was a request from the Kenya Power Africa team to perform a study on what pricing levels could be expected in Kenya in a competitive generation procurement. This request was also discussed and supported by the director of renewable energy of the Ministry of Energy and Petroleum. A key aspect of the study will be to propose appropriate price caps that the Ministry intends to impose on bids. Establishing a proper price level – and thus the price cap – is fundamental to the success of the competitive procurement. PATRP plans to perform a comprehensive study in November 2015 to assist the Ministry in setting this cap. This activity will provide critical information on tariffs to the GOK to help them advance their plans to perform a successful competitive procurement. In short, if proper price caps are established, it will improve the chances of a successful procurement. It will also give Power Africa the opportunity to play a meaningful role in the anticipated competitive power generation procurement and the resulting new MW that will be secured.

3.4.2.3 Legal and Regulatory Reform

PATRP's legal and regulatory reform activities, which were typically driven by an underlying transaction and the need to remove a barrier to advancing the transaction, included:

- *For Ghana:* PATRP assisted with drafting the operations license for the Ghana Gas Company, inspection guidelines on gas processing plants, and the Gas Master Plan. It also provided training on PPAs, demand forecasting, and gas market reviews (see further details below).
- *For Nigeria:* PATRP assisted in drafting the PPA solar form and reviewed TCN's tariff filing. PATRP provided training to the bulk electricity trading entity on solar power development.
- *For Ethiopia,* PATRP assisted in developing a geothermal framework and law that were driven by a high-priority transaction, assisted in developing and improving the grid code, and provided training on the financial modeling of power projects to key government officials.
- *In Kenya,* PATRP provided the Geothermal Development Agency with analytical training on improvements to geothermal project development. PATRP also helped refine the grid code, to ensure that renewable energy is efficiently evacuated to the grid.

3.4.2.4 Geothermal Donor Strategy

In December 2014, PATRP published an update to the Multi-Donor Strategy for Geothermal Development in East Africa. The document aims to develop a coordinated approach to donor assistance that 1) identifies the highest-priority countries for donor assistance and accelerates the development of the transactions with the strongest likelihood of success, 2) identifies the top policy and capacity building activities to advance the development of geothermal resources and power projects, and 3) explores the development of new financing and risk mitigation schemes. PATRP, in collaboration with the US Energy Agency's East Africa Geothermal Partnership, has worked to secure broader donor support for the strategy, and move its implementation forward.

The final update to the strategy was published in September 2015.

3.4.3 Sub-Objective 4-C Natural Gas

PATRP's efforts to advance the development of natural gas and/or import of LNG has been principally focused on Ghana. In this respect, PATRP engaged a technical gas advisor who mobilized to post in December 2014. Since mobilization, the gas advisor (and supporting advisors) have undertaken the following key activities:

3.4.3.1 *Reverse Flow of Gas in the West African Gas Pipeline (WAGP)*

The WAGP began operating in 2008, after USAID had funded technical assistance for its development for the previous eight years. The pipeline was built to transport part of Nigeria's large gas reserves to Cotonou (Benin), Lomé (Togo), and Tema and Takoradi (Ghana), where most of these countries' power plants were located, flowing east to west. Currently the pipeline is not being used to its full capacity due to difficulties experienced by Nigeria in supplying both the domestic and West Africa regional markets.

At the same time, significant gas discoveries were made in Western Ghana, near the western end of the WAGP, creating a situation where large power plants exist in the east of the country (Tema), while gas is predominantly supplied in the west. It occurred to experts that, with minor modifications of the design, the WAGP could transport Ghanaian gas from west to east and partially resolve the Ghanaian gas imbalance. This solution was proposed by PATRP in Ghana's Gas Action Plan, which was designed in 2014 to accelerate the delivery of gas to Ghana's power plants.

Ghana's minister of petroleum requested assistance from Power Africa/PATRP to define the terms of the transaction with the WAGP owners and regional regulator. Those terms have been presented to and approved by the Cabinet of the Ghanaian Government. The PATRP team will continue assisting the Ministry of Power (MOPET) until this deal is closed. When in place, the reverse flow will allow shipping 50 MMscfd in the very short term to Tema and 150 MMscfd within three years, by adding a compressor. This will substantially reduce the gas imbalance between Tema and Takoradi, and initially allow the Tema plants to generate an additional 300 MW, then a total of 900 MW, as the plants switch from liquid fuels to gas.

3.4.3.2 *Support to the Petroleum Commissions*

PATRP prepared a draft operating license for the Petroleum Commission in line with international best practices. It was then used for the Ghana Gas Company, the operator of the offshore pipeline, which received its license in May 2015.

3.4.3.3 *Securitization and Financial Modelling*

PATRP is developing a comprehensive financial model representing the generation and gas sub-sector with electricity supply and financial flows under various assumptions. The model will also identify the risk of default and potential bankruptcy of the various participants in the power sector based on a comprehensive evaluation of the commitments and financial obligations contained in the existing PPAs. It also assesses the financial capacity of the Electricity Company of Ghana (ECG) to pay for the power purchased under the PPAs in light of its billing, receivables and collection forecasts.

The final report is expected to be delivered to USAID in December 2015 and will include recommendations targeted to ensure the financial viability of ECG and the sustainability of the power sector.

3.4.3.4 Gas Master Plan and Natural Gas Pricing Policy

In a letter dated February 12, 2015, the minister of petroleum requested that USAID provide technical assistance under PATRP for the review, update and implementation of the Gas Master Plan (GMP) for Ghana. The GMP sets forth a medium- to long-term strategy and priorities for infrastructure development that will contribute towards the sustainable development of the country's natural gas resources, security of national energy supply, and protection of the environment.

At the end of August 2015, PATRP presented an advisory briefing paper to the Ministry; it included the identification of key parts of the GMP that need to be updated, particularly in light of recent changes in both the gas supply and demand outlook within and outside Ghana (for example, the impact of the recent international oil price collapse, fall in LNG prices, and changes in the commercial, institutional and regulatory environment).

3.4.3.5 Suppressed Demand Study

PATRP generated a draft electricity demand forecasting and suppressed demand estimation study for Ghana, which was shared with USAID, the MOP, the Energy Commission, and other stakeholders. On August 24, a dissemination workshop to present the initial findings and conclusions was organized for 33 local stakeholder representatives drawn from Ministry of Power, ECG, Volta River Authority (VRA) and others. Based on feedback from the workshop, the study is now being finalized and will be presented to USAID in December 2015.

3.4.3.6 Additional Technical Assistance to the Ministry of Petroleum

PATRP prepared two briefing papers for the MOPET, one on regulatory boundaries and a second on the institutional restructuring of Ghana's gas sector. A status update report, "Implementation of the Gas Action Plan," was also prepared and submitted to the MOPET on April 29.

3.4.4 Sub-Objective 4-D: Mobilizing Finance and Building Institutional Capacity

PATRP prepared and submitted to USAID a proposal under the Beyond the Grid initiative. It was premised on the fact that many of the BTG solar off-grid partner companies are set up with 100% equity and they have reached the ceiling in terms of how far and fast they can expand with the start-up equity provided. What is required is dedicated debt for working capital so that they can scale up. There are 10-15 companies that would benefit from access to working capital.

Creating access to working capital was discussed with DCA, which expressed interest in this idea. The most logical commercial financial institution to target is Standard Bank (Stanbic), which has a well-developed banking network in East Africa. A US \$50 million working capital facility has been proposed, with a DCA-backed US \$25 million risk guarantee. The package will include setting up policies and procedures for the facility, training bank staff, and facilitating off-grid companies' access to the facility. If implemented, this work stream could result in 25 MW of new generation, generate 300,000-400,000 new connections, improve access to electricity for 2 million people, and leverage US \$50 million of investment. PATRP plans to explore this concept further with USAID.

4 . POWER SECTOR TRENDS

In compliance with the contract requirements, this section highlights the power sector trends, developments, obstacles and barriers to private sector participation in focus countries.

4.1 ETHIOPIA

4.1.1 Trends and Developments

Ethiopia is one of Africa's fastest growing economies. It has ambitious plans to expand electricity generation capacity to not only power its economy and increase access to electricity for its large population, but also to export electricity to the region. It will soon quadruple its power generation capacity through the commissioning of large hydroelectric dams. This is an unusual success story, yet large challenges loom. Electricity tariffs are far below cost-reflective levels. Indeed, they are among the cheapest in the world and have not been adjusted for years. The consequence is that the fiscal sustainability of Ethiopia's public investment program in power will come under increasing strain and revenue risks will deter private investment. Ethiopia needs to diversify its energy mix away from its dependence on climate-vulnerable hydroelectricity. It has potentially large geothermal and solar resources, but the enabling environment for private investment in independent power projects is lacking. And, after India and Nigeria, Ethiopia has the largest number of people without electricity.

Thus, there is a need for policies that prescribe specific actions in the areas of cost-reflective tariffs, competitive procurement of private investment, the promotion of non-hydro renewable energy such as geothermal energy, streamlining the pathway for project development to maintain sector sustainability, and further integrating Ethiopia into the East Africa Power Pool (EAPP).

4.1.2 Increased private sector participation

Drawing on the above narrative, this sub-section highlights suggested interventions to improve private sector participation in the energy sector.

- The legal and regulatory framework clearly delineates the roles, rights and obligations of public and private sector actors in the electric power subsector: the utility, the regulatory body and independent power producers; however, this framework is incomplete, and thus creates uncertainty and a suboptimal climate for private investors.
- What is needed in this regard is legislation, regulations and specific directives to 1) achieve cost-reflective tariffs in light of political considerations, 2) address issues specific to geothermal⁷ and other renewable energy sources such as wind, solar and waste-to-energy power generation, perhaps via a feed-in tariff for smaller projects and competitive tenders, 3) strengthen integrated electricity planning, 4) streamline the pathway for project development, and 5) establish model power purchase and implementation agreements, coupled with investment in strengthening institutions and building the capacity to execute these mandates.

⁷ Currently underway.

- Developing the power sector, integrating resources, developing generation master plans, and integrating these into larger economic growth and energy policy documents call for increasing the amount of installed renewable electric power generating capacity, and expanding grid and off-grid electrification. However, Ethiopia has repeatedly missed the goals it has established in these areas (other than for large hydro). To correct this, its plans should aim to allay the concerns that private investors commonly hold, e.g., in regard to poor supply and demand data, unclear pathways for project development, competitive procurement, standardized contracts, bankable PPAs and government support, and Ethiopia's roles and responsibilities once integrated into EAPP.
- Areas for working toward universal grid electrification and improved off-grid electrification are: 1) procedural efficiency, particularly in regard to the cost and time involved in establishing a new grid connection, and in the permitting process for mini-grids, and 2) policies and regulations, particularly in regard to the enabling environment for investment in mini-grids by renewable energy project developers, and in stand-alone home systems. The utility needs support in improving procedural efficiency with respect to grid connections; similarly, the energy regulatory body and energy ministry need support in improving policies and procedures with respect to mini-grid permitting and improving the enabling environment for investment.

4.2 KENYA

4.2.1 Trends and Developments

Kenya has been a leader in Africa in facilitating private investment in IPPs, including clean technologies such as geothermal and wind energy. It has also made significant progress in recent years on increasing access to electricity. Yet challenges abound. Earlier progress in power sector planning and the timely initiation of well-designed competitive tenders for new power need to be re-invigorated. Earlier lessons on running effective competitive tenders for thermal power stations need to be extended to geothermal and other renewable energy sources such as wind, solar and biomass energy. And the new Constitution has given new powers to county governments that need to be reconciled with national imperatives for expanding investment in new power generation capacity and access to electricity.

Kenya's Vision 2030 lays out a set of ambitious goals to increase the levels of energy access and security within Kenya. The Draft National Energy and Petroleum Policy 2015 serves as the overarching policy for all the energy sub-sectors. The policy's overall objective is to ensure an affordable, competitive, sustainable and reliable supply of energy to meet national development needs at least cost, while protecting the environment. Included in this policy is a comprehensive section on rural electrification and renewable energy. Broadly, the required policy and regulatory framework are in place, although there are gaps and opportunities for further policy interventions and technical assistance.

4.2.2 Increased Private Sector Participation

Drawing on the above narrative, this sub-section highlights suggested interventions to improve private sector participation in the energy sector.

- Clarity of roles and responsibilities between national and local governments, integrated energy planning, and the establishment of a competitive bidding process for projects will create a

platform for increasing access, changing the share of the energy mix, and accelerating private participation.

- In addition, there needs to be clarity, transparency and consistency in the fundamental agreements supporting projects; this includes the letter of support and PPA.
- It is also critical that the Government of Kenya is transparent about the reserve margin. Currently, the supply and demand balance is not being reported. If projected demand and supply are determined and reported in an objective fashion, it could be better managed without policymakers and parastatals being penalized for not achieving unrealistic Presidential goals.
- The major recommended interventions to increase private sector investment are 1) assisting the Government of Kenya to develop integrated energy planning capacity – this will make demand requirements transparent and assist with more effective target setting, and 2) assistance in setting up the systems, processes and capacity for competitive energy bidding. This will provide investors with clarity on the nature and types of projects, provide competitive tariffs and decrease investor risks.

4.3 TANZANIA

4.3.1 Trends and Developments

Over the last 15 years, Tanzania (GoT) has taken important steps to create essential enabling conditions for the development of the overall energy sector and renewable energy resources in particular. In spite of all the legal achievements and efforts to make improvements to the regulatory and institutional framework, the GoT is still facing a number of challenges. Mirroring the operational issues that result from a fragmented energy policy, there are a number of constraints that must be resolved including a specific legal and regulatory framework for geothermal exploration and inadequate legal and regulatory provisions governing land acquisition and access for the energy sector.

In terms of the legal framework governing the participation of the private sector in power generation and related investment, the Public Private Partnership Act 2010 created the PPP Center as a one-stop coordinating unit to improve overall efficiency, coordination and management for PPP projects and to assess their feasibility and viability, including financial risks and other financial issues, prior to GoT funding and implementation. It is not yet clear whether this legislation will have the effect of slowing IPP developments through making approvals more complicated or whether it will be a requirement for IPPs to also have GoT investment and ownership.

Recently, the GoT enacted three pieces of needed legislation in the oil and gas sectors: the Petroleum Act 2015, the Oil and Gas Revenues Management Act 2015, and the Tanzania Extractive Industry (Transparency and Accountability) Act 2015. This legislation repeals the Petroleum (Exploration and Production) Act 1980, covering upstream petroleum operations, and the Petroleum Act 2008, covering mid- and down-stream petroleum supply operations.

Efforts to reconcile views on cost-reflective tariffs among EWURA, TANESCO and other stakeholders are ongoing and in August 2015, the National Association of Regulatory Utility Commissioners, with support from USAID, held a workshop on cost-reflective tariffs in Dar es Salaam. Electricity tariffs are

a key aspect of TANESCO's operation as they continue to lag in terms of adequate revenue generation. TANESCO has reported losses before taxes in each of the last five years. A comparison of revenues and cost of sales is an indicator of TANESCO's central problem: revenues do not cover the costs of production and power purchases.

In regard to renewable energy feed-in tariffs (FiTs), EWURA made significant progress in 2013 by engaging a consultant to carry out the required study, which was finalized in late 2014. The study focused on specific technologies including mini-hydro, mini-grid connected solar and wind projects, and biomass both for the main grid and mini-grid small power producers (SPPs). EWURA approved, in April 2015, the Second Generation SPP Framework for Tanzania and published the 2015 SPP tariffs (calculated based on the avoided cost methodology) which are applicable for starting grid- and off-grid connected SPPs. Under the Second Generation SPP Framework, FiTs do not distinguish between SPPs located on the national grid or on mini-grids. Instead, it provides fixed tariffs by size for hydro and biomass SPPs wherever they are located.

4.3.2 Increased Private Sector Participation

Although existing policies and laws have generally covered many of the elements needed to support investments in cleaner power generation and broader access to electricity, there are still significant policy gaps, and a number of legal, regulatory and institutional constraints that must be resolved, including those summarized below:

- Fragmentation/misalignment of institutional roles due to a lack of harmonized policies and laws; this affects institutional operational capacity, tariff setting, power sector planning, procurement roles and responsibilities, and electrification plans
- Gaps in policy/legislation on biomass, large renewable energy projects, geothermal, subsidies, and energy efficiency programs
- Issues affecting TANESCO's technical and financial performance: the need for cost-reflective tariffs, capacity for power planning, and the effects of non-transparent procurements
- Issues for facilitating IPPs: procurement procedures/open international bidding, adequacy of public private partnerships (PPPs) for IPPs, environmental compliance, and developer financing.

The main recommendations for energy sector improvements include: 1) enhancing tariff capabilities within the Energy and Water Utilities Regulatory Authority (EWURA), 2) introducing new capabilities at EWURA in response to sector reform, 3) establishing and starting up the Electricity Infrastructure Procurement Coordinator (EIPC), as described in the Electricity Supply Industry Reform Roadmap, especially with capacity to issue competitive procurements and associated procurement documentation and 4) instituting systems and capability with the GoT to gather and organize sector data to support sound, strategic integrated power sector planning.

4.4 GHANA

4.4.1 Trends and Developments

Like much of the rest of sub-Saharan Africa, and especially the Power Africa focus countries, Ghana has very ambitious plans to fully electrify the nation, create and maintain an efficient and transaction-friendly power market, and support cleaner energy sources to mitigate climate change. While Ghana has done well in expanding access to electricity, with a national access rate of 80.6%, its performance in adding new generation capacity has been lacking. Despite its numerous energy development plans (which include provisional licensing to approximately 129 prospective power generation projects, the bulk of which are sponsored by IPPs), few of these plans have translated into investment to date.

With a total installed capacity of 2,965 MW and a dependable capacity of 2,541 MW, mainly through hydroelectric and thermal generation, Ghana should be in a position to satisfy its daily peak demand of 1,900 - 2,100 MW. However, due to lower water levels at its hydroelectric facilities, combined with ongoing maintenance and fuel supply issues, load shedding has become a problem in the country.

In encouraging the involvement of IPPs in the sector, Ghana has passed public procurement legislation and established an agency to oversee the public procurement process. However, the sector is frustrated by constrained access to fuel sources (in the case of thermal generation) and the absence of creditworthy off-takers affecting the bankability of transactions. Furthermore, the process for developing IPP generation projects is not well defined, with IPPs approaching multiple entities in their efforts to realize progress their projects.

4.4.2 Increased Private Sector Participation

Drawing on the above narrative, this sub-sections highlights suggested interventions to improve private sector participation in the energy sector.

- Ghana needs a more effective procurement system to move its IPPs forward. Instead of relying on unsolicited and directly negotiated deals, Ghana should initiate timely international competitive tenders for power projects, coupled with a clear contracting framework including standardized power PPAs and government consent and support agreements (GCSAs) or equivalent. Competitive tenders can be used for both thermal and renewable energy. Experience in other emerging economies and developing countries has shown that competitive tenders result in lower prices. The existing renewable energy FiTs might be retained for smaller projects.
- Ghana can also not afford to take on significant amounts of new contingent liabilities associated with GCSAs, which provide support in the event that the Electricity Company of Ghana is unable to meet its obligations under the PPAs with IPPs, given restructuring requirements by the International Monetary Fund and World Bank. Thus, without serious restructuring of the country's utilities to make them more transaction friendly and creditworthy, there will continue to be fewer transactions for cleaner power than there should be.
- The Government of Ghana needs to allow the electricity economic regulator, the Public Utilities Regulatory Commission, to follow through with its proposed tariff increases and move them to cost-reflectivity. Although this may be difficult for consumers in the short term, it should decrease prices in the long term, while improving the quality of service, given the additional projects closed, plants in operation, and sources of supply brought online.

4.5 NIGERIA

4.5.1 Trends and Developments

Nigeria has progressed further in its power sector reforms than any other African country. It has unbundled generation, transmission and distribution; it has sold its generation and distribution companies; and it has established a bulk electricity trader to manage contracts between participants in the sector. Nigeria also has more IPP capacity and investment than any other African country (with the exception of South Africa).

Nigeria faces huge challenges in implementing further reforms, increasing investment and achieving financial sustainability in the power sector. Available generation capacity is a fraction of what is needed. With a population of more than 170 million, Nigeria has less than 4 GW of available generation capacity, compared to South Africa's available capacity of around 32 GW, despite South Africa having a smaller economy and population than Nigeria.

Not enough revenue is flowing from customers to electricity distribution companies (DisCos) through the market operator and bulk trader to generation companies (GenCos) and gas suppliers. The regulator has exacerbated the situation through arbitrary changes to tariffs, which have further threatened the financial viability of DisCos.

Nigeria's path to energy reform has not been smooth. There have been delays and a lack of purposeful action in resolving core challenges around financial sustainability, although it must be recognized that the Federal Government of Nigeria continues to intervene to shore up the reforms. The recent intervention of the Central Bank of Nigeria in creating the Nigeria Electricity Market Stabilization Facility is a case in point. However, like many African countries, there is a gap between a policy's formulation and its implementation. Nigeria has a new government and there is potential for reinvigorating power sector reforms.

4.5.2 Increased Private Sector Participation

There should be continued efforts at reforming and adding liquidity to the energy sector, by undertaking the following activities:

- Further development of the blueprint for power sector reform, including the creation of a framework for converting energy strategies to actionable programs with defined activities with timelines
- Securing the financial viability of distribution companies so that the financial sustainability of the sector can be assured
- Capacity building for the country's new electricity regulatory Commissioners so that credibility, transparency and predictability can be established in setting cost-reflective tariffs
- The development and implementation of international competitive tenders for renewable energy projects
- The development of a renewable energy policy and implementation plan to unlock its potential
- Enhanced capacity to expand access to electricity beyond the grid. Nigeria has more people without electricity than any other country in the world, except India, and the challenges in extending the grid and implementing parallel off-grid solutions are significant.

4.6 LIBERIA

4.6.1 Trends and Developments

Until mid-2014, Liberia was on a stable path toward implementing its medium-term development strategy, the Agenda for Transformation. However, the Ebola crisis lasted close to 16 months and eroded some of the important gains that Liberia made in reducing poverty.

Additionally, the slow-down in production, declining commodity prices, as well as delays in investments in key concessions in mining and agriculture caused by the Ebola outbreak, have led to lower exports and an increased trade deficit in the medium term.

The Liberian Government has recognized that immediate improvements in the regulatory environment can fast track much needed financial assistance in partnership with the private sector. To that end, the Electricity Act was passed in October 2015 (originally drafted in 2006 along with the National Energy Policy through a USAID program) to unbundle the sector and provide the regulatory framework for the private sector to fully participate in the sector's entire value chain. This law unlocked \$257 million in grant financing from the MCC. The Liberia Compact enhances Liberia's engagement in Power Africa by addressing two binding constraints to economic growth: lack of access to reliable and affordable electricity and inadequate road infrastructure. To address that, the compact includes funding for the rehabilitation of the Mt. Coffee Hydroelectric Plant, development of a training center for technicians in the electricity sector, support for the creation of an independent energy sector regulator, and support for the development of a nationwide road maintenance framework.

4.6.2 Increased Private Sector Participation

Suggested interventions to improve private sector participation in the energy sector include:

- Design of the regulator, including guidelines, policies, and capacity building of commissioners. To ensure the private sector responds positively to the recent passage of the Electricity Act, rapid investment should be made to ensure the transitional regulator has sufficient resources. Donors and stakeholders must focus on immediate capacity building of the division and those who will eventually become commissioners. Developing the right environment to build trust in the independence of the regulator will include the interpretation of government policy and incorporating it in its decision-making process. The enabling environment includes such things as: 1) regulatory procedures addressing licensing, tariffs, stakeholder/public hearings and input, internal procedures of the regulatory body such as organization, staffing, regulatory board members and decision-making process, tools, terms of Board members, etc., 2) power sector governance such as the Energy Law, market rules, grid code, distribution code, and licenses, and 3) ensuring a clear separation of policy-making, regulation and ownership.
- Donors and stakeholders may assist the Government of Liberia in developing a regulatory action plan that takes account of lessons learned from a wealth of similar experiences in other emerging economies that have established regulatory institutions and provided ongoing training and mentoring programs. The capacity development phase of the action plan will identify the technical assistance and on-the-job training required to equip the regulatory board with the necessary technical, economic, financial and legal skills.

- Continued capacity building of the Liberia Electricity Corporation and design of a framework of operations in line with the new Electricity Act. Donors and stakeholders should continue their institutional support for LEC to ensure it becomes a creditworthy off-taker to support grid expansion in partnership with the private sector. The continuation of a loss reduction program would include the appropriate incentives for utility management and personnel, but require that the governance/regulatory structure allows the entity to perform on a commercial basis without political interference. Incentives cut across all managerial and line workers and ensures the enforcement of laws against theft by both workers and customers are also needed.

5 . ENVIRONMENTAL COMPLIANCE

5.1 OVERVIEW

In March 2015, USAID approved the PATRP Initial Environmental Examination (IEE) in accordance with US Federal Regulation (USAID 22 CFR 216).

Although PATRP is a technical assistance program, the IEE recommended a Negative Determination with Conditions for the PATRP program as a whole because of the common and potentially significant impacts of energy sector development activities when implemented.

Mitigating actions specified under these conditions apply only to PATRP Objectives 2 (Late-Stage Transaction Support) and 3 (Small-Scale Projects and Rural Electrification/ Mini-Grids Support). Objectives 1 (Institutional Support to Power Africa Coordinator's Office) and 4 (Regulatory and Institutional Strengthening and Policy Program) have no additional conditions attached to them, other than to observe the general commitment to integrating environmental and social safeguards into activities. For Objectives 2 and 3, USAID (through PATRP) supported transactions, whether existing or new, where no other USG agency is conducting environmental and social (E&S) appraisal in terms of its own regulations, an environmental and social screening process is conducted before PATRP can provide transaction advisory services. The E&S screening process follows the flowchart shown in Figure 11, which complies with the IEE's Section 4.5.

5.2 THE TRANSACTION SCREENING PROCESS

For all transactions listed in the PATT, PATRP conducts and documents E&S impact screening in one of two ways:

- By completing a more detailed E&S review checklist called the PATRP Environmental and Social Review Methodology (PESRM) Checklist. In addition, and to allow for a more rigorous screening, if it is a hydropower transaction, PATRP performs a PESRM Supplementary Checklist, or
- By confirming that another USG agency, multilateral development bank (MDB) or international financial institution (IFI) is conducting E&S impact screening or assessment of the transaction using its respective processes.

The PESRM screening process comprises a desktop due-diligence mechanism for identifying environmental and social impacts and constraints at a site-specific level. It considers such aspects as:

- Developer and/or key partners involved in the transaction, their track record and policies in place relating to labor practices and sustainability
- Nature of the project, including technical details of the components and extent of the infrastructure
- Governance framework, including country frameworks and policies on environmental and social issues
- Land tenure status and resettlement issues
- Environmental considerations, including biodiversity impacts and project emissions
- Social/cultural/political/economic considerations, and country risk – including issues such as government stability and conflict situations.

PATRP re-screens transactions and their previously completed PESRM checklists when transactions move from one stage to another in the project cycle, or change significantly in scale, scope, technology or location. A key decision point in the process is whether or not another USG agency, MDB or IFI is

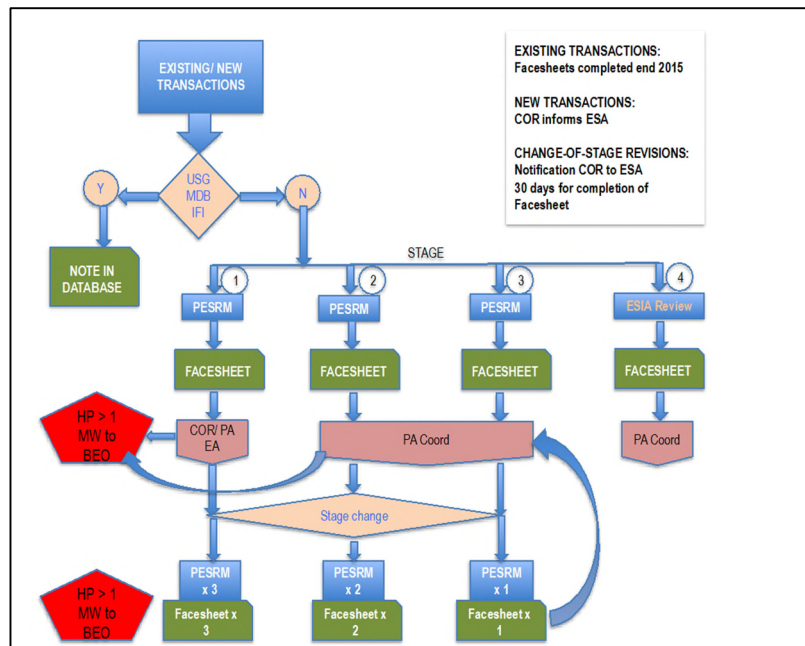


Figure 11. E&S Checklist Flowchart

checklists and face sheets for these projects are shared with the Power Africa coordinator and the Regional Bureau Environmental Officer.

The PESRM checklist has also undergone some revisions during the period in question in order improve the flow of the document. For instance, questions on gender have been collated in one place, and project information now features earlier, with impacts/issues later on. In addition, questions viewed as duplicative have been eliminated. A copy of the revised checklist is set forth in Appendix B to this report.

5.3 FULFILMENT OF IEE CONDITIONS

Table 6 below outlines the actions undertaken by PATRP in fulfillment of the IEE conditions.

With regard to IEE condition 2, once the IEE was approved in March 2015, an initial list of generation projects was identified for screening. 65 transactions listed in PATT were screened, of which 26 were subjected to the PESRM Checklist. Five of these transactions were subjected to the PESRM Hydro Supplementary Checklist. All PESRM checklists were completed and approved by USAID by September 30, 2015 – as listed in Tables 7a and 7b. In all instances, PATRP worked closely with the Coordinator's Office and the Regional Environmental Office. Where available, screenings were supported by reviews of project-specific ESIA reports to inform appropriate mitigation actions in the context of PATRP's engagement on individual transactions.

Table 6. IEE Compliance Activities

IEE Condition	Requirement	Comments
1 A	Identify existing transactions for screening	<p>Completed. Once the IEE was approved in March 2015, an initial list of generation projects was identified for screening.</p> <p>65 transactions listed in PATT were screened of which 26 were subjected to the PESRM Checklist. A further five transactions were subjected to the PESRM hydro supplementary checklist.</p> <p>Of the remaining transactions, 27 had existing IFI or other USG involvement and thus did not qualify for screening. Confirmation of their involvement was obtained from 1) PATT – based on input from TAs and 2) publicly available documents, to include ESIA's. The balance did not qualify for screening owing to the project being at a concept stage (i.e., pre-feasibility).</p>
	Establish process for tracking	<p>Completed. The existing transactions tracker (PATT) has been modified to include an environmental and social compliance category, which allows real-time monitoring. Any ESIA's or environmental permits sourced are also uploaded onto PATT. In addition, PATRP maintains a spreadsheet that summarizes progress on all transactions requiring E&S screening, stage, Financial close, whether ESIA report sourced, etc. PATRP also reviews whether local government/regulatory approvals are in place.</p>
	Conduct E&S screenings of existing transactions by end September 2015	<p>Completed. As mentioned above, based on an initial screening, 26 transactions were subjected to the PESRM Checklist (see further details below) and approved by USAID by the end of September 2015. These checklists have been uploaded to PATT, together with the ESIA's of 14 transactions sourced by PATRP.</p>
1B	Conduct E&S screening of new transactions	<p>Ongoing activity. As anticipated, new generation transactions have been added to PATT subsequent to year end September 2015. At present, PATRP has identified a further 80 transactions that will need to undergo a PESRM checklist. PATRP is prioritizing late stage transactions, of which there are only 6, which will be completed by December 2015.</p>
	Notification of each new transaction between COR and PATRP	<p>Ongoing activity. PATRP regularly shares the spreadsheet of updated transactions with USAID's COR.</p>
1 C	PATRP will rescreen transactions at stage changes or if they have advanced significantly (within 45 days of stage change)	<p>Ongoing activity. Transactions are being monitored for stage changes, at which time E&S rescreening will be initiated. To date, only one transaction has required rescreening (the APSD biomass transaction - due to the plantation ESIA being sourced).</p>
2	Power Africa review of E&S checklist to determine whether continued support is appropriate (for end September 2015)	<p>Completed. As reported above, 26 transactions underwent the PESRM checklist, which were reviewed and approved by USAID. Based on the conclusions presented in these checklists, no projects were identified for discontinuing Power Africa support. Further details are outlined below.</p>
	Power Africa review of E&S checklist to determine whether continued support appropriate (for rescreening or new transactions)	<p>Ongoing activity. As reported above, new generation transactions have been added to PATT and are undergoing screening and will require PESRM checklist.</p>
3	Review of ESIA's for stage 3 and 4 transactions (Power Africa will not provide support to any Stage 4 transaction without a completed ESIA party to that transaction)	<p>Ongoing activity. Only two stage 4 transactions have undergone the PESRM checklist: CenPower Kpone (gas) and Tulila (hydro). For Cenpower Kpone, the developers have publicly stated that an ESIA has been completed to Ghanaian and international standards and an environmental permit has been obtained. Further, project debt is funded by a number of international DFIs, which strongly implies that a high level of environmental and social safeguards will be observed.</p> <p>See www.cenpowergen.com/press/Cenpower_FAQ.pdf.</p>

IEE Condition	Requirement	Comments
		For Tulila, PATRP has obtained the ESIA permit for the project, which demonstrates that the ESIA process was undertaken in accordance with Tanzanian ESIA requirements. PATRP is in the process of sourcing the ESIA's for these transactions. PATRP will also source any missing ESIA's for stage 3 transactions.
4	Resources: Power Africa to make available links to E&S soundness policies and procedures of USG agencies as well as IFC, Equator Principles and carbon principles. If USG agency policies are not available, Power Africa is to list regulations governing E&S impacts of agencies and provide links to their public statements.	<p>Ongoing activity. PATRP has sourced E&S policies for OPIC, MCC, USAID Africa Development Foundation and Exim Bank which are currently hosted on PATRP's SharePoint site. Policies of the USTDA are being sourced. No other USG agency is connected with a transaction listed in PATT. PATRP has also collated IFC performance standards and Equator Principles. These are currently hosted on PATRP's SharePoint site.</p> <p>If USTDA policies cannot be sourced, PATRP will list regulations governing E&S impacts of the agency and provide links to its public statements.</p>
5	Staffing: Power Africa through PATRP to make available an E&S advisor to: <ul style="list-style-type: none"> Complete PESRM checklists Provide E&S social soundness on activities Serve as a resource to relevant staff as needed 	Completed. PATRP has engaged an E&S advisor on a full-time basis, backstopped by a senior E&S consultant on an as-needed basis. The E&S advisor is also supported by PATRP's gender specialist, who provides subject matter expertise on gender components of the PESRM checklist.
6	PATRP, with support from Power Africa, to provide training to PATRP staff including transaction advisors, relationship managers, other USAID staff and implementing partner staff. Training will empower staff to address, promote and help overcome barriers to E&S soundness in PATRP transactions.	<p>Ongoing activity. PATRP held conference calls with TAs in September 2015 to discuss information requirements for E&S checklists and overall IEE requirements. PATRP has developed training material for two training modules. The following training schedule has been agreed:</p> <ul style="list-style-type: none"> Webinar for TAs on module 1 - IEE requirements and conditions thereof will be held in January 2016. USAID/Pretoria staff will also be invited to attend. Webinar for TAs on module 2 - covering material specified under Condition 6 of the IEE with respect to E&S soundness to be held in February 2016. USAID/Pretoria staff will also be invited to attend. <p>Lessons learned from the field and E&S screenings conducted to date in the reporting period have been used in the development of the abovementioned training materials.</p>
7	Advising: Power Africa / other relevant staff to provide recommendations to private sector partners on adhering to international E&S best practice	Ongoing activity. Following on from recommendations and action items listed in PESRM Checklists, the PATRP E&S advisor has engaged with TAs on next steps, which include reaching out to the respective developers/investors on 1) sourcing additional environmental material (ESIAs) and 2) monitoring compliance with best practices on the relocation of communities.
8	Reporting: Report to Power Africa leadership any significant environmental and social issues with respect to a transaction or party they are engaged with	Ongoing activity. Any significant issues are to be raised as part of the PESRM checklist. To date, PATRP has raised specific concerns with USAID and the Regional Environmental Office on two transactions. These concerns were subsequently addressed after further dialogue with USAID.
9	Screen hydropower transactions in PESRM supplement	Ongoing activity. As mentioned above, a supplementary PESRM Checklist for all hydro power projects was developed and is being used.

Table 7a: PATRP Transactions Screened and no PESRM completed

No.	Transaction screened	Country	Checklists completed	Reason why Transaction checklist not completed
1.	WAPP Domunli Power Gas	Ghana	No	AfDB involved
2.	Kinangop--Wind	Kenya	No	OPIC involved
3.	Lake Turkana Wind	Kenya	No	OPIC involved
4.	Cummins Baringo--Biomass	Kenya	No	OPIC involved
5.	Akiira Geothermal	Kenya	No	OPIC involved
6.	Menengai Geothermal	Kenya	No	OPIC involved
7.	Suswa Geothermal	Kenya	No	On hold
8.	Rumerti Solar Project	Kenya	No	OPIC involved
9.	Egbin Power Gas	Nigeria	No	No direct Assistance (reached financial close) ⁸
10.	Geregu Power Gas	Nigeria	No	No direct Assistance (reached financial close)
11.	Kainji Hydro	Nigeria	No	No direct Assistance (reached financial close)
12.	Kainji Jebba Hydro	Nigeria	No	No direct Assistance (reached financial close)
13.	Sapele Power Gas	Nigeria	No	No direct Assistance (reached financial close)
14.	Shiroro Power Hydro	Nigeria	No	No direct Assistance (reached financial close)
15.	Transcorp Ughelli Power Gas	Nigeria	No	No direct Assistance (reached financial close)
16.	Olorunsogo I Gas	Nigeria	No	No direct Assistance (reached financial close)
17.	Omotosho I Gas	Nigeria	No	No direct Assistance (reached financial close)
18.	Azura Edo Gas	Nigeria	No	OPIC involved
19.	Ikot Abasi Power Gas	Nigeria	No	OPIC involved
20.	Abuja Solar	Nigeria	No	Stage 1 – no concerted PATRP effort and project not defined
21.	Chevron Agura Gas	Nigeria	No	Project abandoned
22.	Abiba Solar / Quaint	Nigeria	No	USTDA involved
23.	First Independent Power / Afam Gas	Nigeria	No	No direct Assistance (reached financial close)
24.	First Independent Power / Elema Gas	Nigeria	No	No direct Assistance (reached financial close)
25.	First Independent Power / Omoka Gas	Nigeria	No	No direct Assistance (reached financial close)
26.	Kinyerezi Gas	Tanzania	No	EXIM involved
27.	Symbion KMRI Biomass	Tanzania	No	OPIC involved
28.	NextGen Kigoma Solar	Tanzania	No	OPIC involved
29.	Husk Power Biomass	Tanzania	No	OPIC involved
30.	Taiba N'Diaye Wind	Senegal	No	OPIC involved
31.	Redstone CSP Solar	South Africa	No	OPIC involved
32.	Rusizi III Hydro	Burundi	No	World Bank, AfDB involved
33.	WAPP Interconnection projects	Benin	No	World Bank, AfDB involved
34.	WAPP Maria Gleta	Benin	No	World Bank, AfDB involved
35.	dVentus Smart Meters - Energy Efficiency	Ethiopia	No	Micro grid, no E&S footprint
36.	Corbetti Geothermal Phase 2a	Ethiopia	No	OPIC involved
37.	Corbetti Geothermal Phase 2b	Ethiopia	No	OPIC involved
38.	Corbetti Geothermal Phase 3	Ethiopia	No	OPIC involved
39.	Corbetti Geothermal Phase 4	Ethiopia	No	OPIC involved

⁸ Transactions 9 – 17 of Table 7A are legacy transactions that PATRP inherited from the generation privatization process undertaken in Nigeria (pre-PATRP). The work to secure financial closing was done under a predecessor USAID program (Africa Infrastructure Program).

Table 7b: PATRP Transactions Screened and PESRM completed

No.	Transaction screened	Country	Checklist completed	Stage @ Sep 2015	ESIA report sourced
1.	CenPower Kpone Gas	Ghana	Yes	4B	Yes ⁹
2.	Tulila Hydro	Tanzania	Yes	4B	Yes ¹⁰
3.	Bridge (Fast) Power Gas	Ghana	Yes	3A	No
4.	Corbetti Phase 1 Geothermal	Ethiopia	Yes	3B	No
5.	Tindinyo Hydro	Kenya	Yes	3B	Yes
6.	DuSable Capital Solar	Nigeria	Yes	2B	Yes
7.	Nigeria Solar Capital	Nigeria	Yes	3B	Yes
8.	Pan Africa Solar	Nigeria	Yes	3A	Yes
9.	Century Power Gas	Nigeria	Yes	3A	Yes
10.	Kiwira River Hydro	Tanzania	Yes	3B	Yes
11.	Signik Energy / Episolar Solar	Ghana	Yes	3A	No
12.	African Plantations for Sustainable Development (APSD) Biomass	Ghana	Yes	3A	Yes
13.	Mainstream/Actis Wind	Ghana	Yes	3A	No
14.	Kipeto Wind	Kenya	Yes	3A	Yes
15.	AGIL Geothermal	Kenya	Yes	3A	Yes
16.	Mapembasi / Njombe Hydro	Tanzania	Yes	3A	No
17.	Senergy 2 Solar	Senegal	Yes	3A	Yes
18.	Proton Energy Gas	Nigeria	Yes	3A	No
19.	Qua Iboe Gas (MPN QUIPP)	Nigeria	Yes	3B	Yes
20.	JBS Wind	Nigeria	Yes	3A	No
21.	Petit Bara Solar	Djibouti	Yes	3A	Yes
22.	Mere Power Nzema /Blue Energy Solar	Ghana	Yes	3A	No
23.	Ghana 1000 Gas	Ghana	Yes	3A	Yes
24.	Ngonye Falls Hydro	Zambia	Yes	2A	No
25.	Kumi Zuba Solar	Zambia	Yes	2A	No
26.	Kwamoka Biomass	Ghana	Yes	2B	Yes

*ESIA report on file

Overall, the transactions subjected to the PESRM Checklist demonstrated an “acceptable” level of compliance (i.e., no risks were identified that could not be adequately mitigated) and environmental impacts are either not yet fully documented (due to the absence of ESIA reports), or mitigation measures prescribed in the management plans are commensurate with the anticipated impacts. In these circumstances, no recommendations were made to cease PATRP support to any of these transactions. However, several projects do warrant ongoing PATRP monitoring or more affirmative activities due to siting considerations and associated impacts on receiving communities in particular. This is true for geothermal projects situated in or near sensitive areas, as well as some of the larger wind, solar and biomass energy projects competing for space within communal areas. An illustrative list of follow-on activities mentioned in PESRM checklists is:

⁹ The developers have publicly stated that an ESIA has been completed to Ghanaian and international standards and an environmental permit has been obtained. Further, project debt is funded by a number of international DFIs, which strongly implies that a high level of environmental and social safeguards will be observed. See www.cenpowergen.com/press/Cenpower_FAQ.pdf.

¹⁰ PATRP has obtained the ESIA permit for the project, which demonstrates that the ESIA process was undertaken in accordance with Tanzanian ESIA requirements

**Case Study | Ngonye Falls (50 MW)
Run-of-River HPP Situated on the
Zambezi River**

- Site owned and managed by traditional leadership, local community and the Zambia Wildlife Authority.
- Potential impacts on social and ecological fabric flagged in PESRM checklist prior to conduct of ESIA.
- PATRP TA tasked with approaching project developer, to ensure ESIA scope fully reflects the issues flagged in PESRM checklist.

First, sourcing missing ESIAs in order to further define project impacts and mitigation plans. In accordance with condition 3 of the IEE, PATRP is required to source the ESIAs by stage 4 in order to continue its support. The intention is not to inhibit PATRP's development of a particular transaction until this is done.

Second, where mitigation is not obvious based on country circumstances or project arrangements, pro-actively encourage the implementation of gender-sensitive development policies and practices. Eight transactions have been identified as potentially benefitting from additional support in this regard.

Third, monitor the relevant environmental and social aspects of transactions, ensuring that the provisions of the environmental

management plans are adhered to.

5.4 ROLES AND RESPONSIBILITIES

PATRP's E&S advisor is primarily responsible for implementing the IEE's conditions, which include:

- Conducting initial screening of all projects in the PATT to establish whether other USG agency, MDB or IFI E&S procedures are being followed and implemented
- Making links to information on the environmental and social safeguard policies and procedures of USG agencies/MDB/IFI partners in Power Africa available to transaction advisors and others falling under the PATRP umbrella.
- Conducting training as required or requested on related matters that will embed environmental and socially sound practices into Power Africa's activities.

In order to conduct the screening and if necessary, the checklist review, PATRP's E&S advisor solicits information on the project sponsors and partners, what is proposed and the site/s at which it is to be located. Transaction advisors assist the screening and review process by:

- Informing sponsors, developers, and partners of Power Africa's commitment to environmentally and socially sound development, of their duty of care, and of Power Africa's E&S screening and review processes
- Obtaining a list of USG agencies/MDBs/IFIs and key contact persons engaged in/partners in the transaction
- Trying to establish whether any other USG agency/MDB/IFI is or will be leading E&S assessment procedures on the project.

5.5 FUTURE TASKS

Over the next six months, the PATRP E&S advisor will be focusing on the following three strands of the IEE:

5.5.1 Continued Screening Activities

The PATRP E&S advisor has identified an additional 80 transactions that will need to undergo a PESRM Checklist in the coming months. PATRP is prioritizing late-stage transactions, of which there are only six, which will be completed by December 2015.

Further, and in accordance with the IEE conditions, PATRP will contact relevant USG agencies, IFIs or MDBs, to confirm that the applicable USG agency, IFI or MDB is conducting environmental and social impact screening according to its own policies and procedures for those PATRP supported transactions that have not undergone a PESRM checklist.

5.5.2 Training

PATRP has developed training material for two training modules. The following training schedule has been agreed: 1) Webinar for TAs on module 1 - IEE requirements and conditions, to be held in January 2016. 2) Webinar for TAs on module 2 - covering material specified under Condition 6 of the IEE with respect to E&S soundness, to be held in February 2016. USAID Pretoria staff will also be invited to attend both sessions.

5.5.3 Monitoring Existing Transactions

The PATRP E&S advisor will continue to follow up on recommendations and action items listed in PESRM checklists, particularly with respect to 1) sourcing additional environmental material (ESIAs) and 2) monitoring compliance with best practices on relocation of communities.

6 . GENDER

Advancing the full participation of women and girls in the political, economic, and social realms of their countries is a key goal of U.S. foreign policy.¹¹ As such, promoting gender equality and female empowerment is a critical component of Power Africa, and by extension, PATRP. Recognizing women as vital actors in the energy sector, Power Africa seeks to support projects, programs and policies that strive to reduce gender inequalities and promote the effective engagement of both men and women.¹²

6.1 DEVELOPMENT OF A GENDER INTEGRATION STRATEGY

PATRP prepared a PowerPoint presentation for use in a USAID training course that was given in Johannesburg in October 2014. PATRP's home office managers gave the presentation to all PATRP transaction advisors, key personnel and senior staff on October 31, and facilitated a brainstorming session on the subject. The session was documented and the minutes given to USAID. PATRP subsequently identified a gender expert at the University of Pretoria, who was interviewed by USAID's gender activity manager in November. The candidate joined PATRP as the program's gender advisor in April 2015 and proceeded to develop a gender integration strategy in compliance with PATRP's contractual requirements.

The gender integration strategy was developed and approved by USAID in September 2015. The strategy provided for the following activities for the gender advisor:

- Review and provide timely input into all key PATRP documents, including transaction advisor performance metrics, handbooks, monitoring and evaluation plan, and all work orders to include a gender component, where relevant, if not already included.
- Include highlights and achievements with respect to advancing gender equality and women's empowerment in information provided by PATRP for Power Africa annual reports, quarterly newsletters, and website.
- Share information on best practices and lessons learned relating to gender and small-scale renewable energy from Power Africa activities on existing virtual platforms (such as Gender Equality for Climate Change Opportunities, a USAID-funded initiative).
- Compile a quarterly "gender and energy news" email to share with all PATRP staff.
- Convene workshops for PATRP staff to create an understanding of why and how to integrate gender into PATRP's activities. Workshops will be individually tailored to be relevant to the work of management, transaction advisors, relationship managers, and other staff as appropriate.
- Identify potential and unforeseen negative impacts from Power Africa-supported activities through gender integration into the PATRP's PESRM and propose interventions to mitigate the impacts.
- Build the capacity of transaction advisors to integrate gender into their transaction-based activities and in their engagement with key ministries through training, information sharing, and resource development.

¹¹ U.S. Department of State Policy Guidance: Promoting Gender Equality and Advancing the Status of Women and Girls. Fact Sheet. Office of Global Women's Issues, Washington DC. July 3, 2014.

¹² Power Africa Gender and Energy Fact Sheet.

6.2 GENDER INTEGRATION ACTIVITIES

The approval of the Gender Integration Strategy has provided greater impetus for PATRP to integrate gender into its activities. The strategy provides a clear road map including goals, approaches, activities and an implementation plan. For example, moving forward from the adoption of the strategy, all work orders are to indicate how gender will be integrated into the proposed activity.

In furtherance of the abovementioned strategy, PATRP's gender advisor has undertaken the following activities.

6.2.1 Women in African Power (WIAP)

PATRP is providing support to the Coordinator's Office to establish and coordinate the Women in African Power (WIAP) network. PATRP assisted in convening the inaugural meeting, which was held in Cape Town in June 2015 on the side-lines of the Africa World Economic Forum. More than 40 female leaders working in the energy sector for Africa gathered for a morning of discussions about gender equality for those working in and for the energy sector in Africa.



WIAP event, Cape Town, June 2015
(Photograph: R. Gharib)

Since the launch of WIAP, PATRP's support for WIAP has continued and includes the creation and maintenance of a member database of over 200 female professionals in the energy sector in Africa, and internationally, as well as ongoing outreach to increase membership. The database serves as a valuable tool for PATRP management for staff recruitment towards meeting its commitment to increase the representation of women on PATRP's staff. It is expected that transaction advisors will also refer to the database to identify possible consultants for technical support in the field.

A WIAP LinkedIn group has also been established and is managed by PATRP. There are 62 group members so far. Relevant news and information is shared on this platform by PATRP on average twice a week. PATRP is now providing support to the planning of the official launch of the network at the United Nations International Conference on Climate Change (COP 21) in Paris in December 2015.

6.2.2 Power Africa Fellowship

The gender advisor is also heavily involved in PATRP's Power Africa Fellowship. It has been agreed that additional support should be provided to our transaction advisors and this need has triggered a decision to introduce the Power Africa Fellowship, which will be implemented through PATRP. Fellows will not only provide support to transaction advisors, but will also become beneficiaries of Power Africa's investment in developing regional expertise. It is envisioned that successful candidates will be enrolled as Power Africa fellows, and will be tasked with providing support to, and be mentored by, their respective transaction advisors. It is anticipated that up to 8 fellows will be recruited in the next 12 months. By ensuring that at least half of Power Africa fellows are women, women's participation in the energy sector in Africa will be promoted. This opportunity will provide valuable professional experience and build the leadership skills of new host country graduates.

6.2.3 Working with Transaction Advisors

To date, five opportunities have been identified in the field on which the gender advisor is collaborating with the relevant in-country transaction advisor to ensure gender integration into these activities:

- Proposed training of the local community on ownership aspect of a Hydro project in Kenya
- Proposed geothermal drilling training in Kenya
- Proposed geothermal drilling training in Djibouti (World Bank with East Africa Geothermal Partnership)
- Legal and technical specialist referrals to sponsors of a project in Cote d'Ivoire
- Renewable energy training at Dodoma University in Tanzania.

Follow-up with respect to these activities is ongoing. PATRP is committed to building women's capacity to participate in the energy sector at all levels of the value-chain, and increasing women's participation in the sector, as is evidenced by these initial activities that have been identified so far for gender integration.

6.2.4 Knowledge Management

The gender advisor ensured that all PATRP management reviewed and understood the gender integration strategy, once approved, by facilitating a capacity building session for management on gender integration in relation to PATRP's activities. Relevant concepts were clarified towards a common understanding of gender integration in PATRP, and contractual obligations in relation to gender were reviewed.

To further support the management and staff, 25 publications on gender and energy have been compiled into a folder on PATRP's SharePoint drive to date. The resources are filed under the following subcategories: background papers, country info, guides and toolkits, and reports. Information on mainstreaming gender into energy projects and energy policy, gender and renewable energy, women's economic empowerment, gender and infrastructure, as well as country-specific gender and energy related information, is included in this virtual resource center.

7 . CHALLENGES & LESSONS LEARNED

This section sets forth the challenges faced by PATRP over the past 12 months, in conjunction with lessons learned during contract implementation.

7.1 CHALLENGES

7.1.1 Relocation and Personnel Challenges

The relocation of PATRP's office from Nairobi to Pretoria gave rise to challenges: relocating the main staff and offices, revisiting subcontract arrangements, and identifying new local personnel. The program's start-up was delayed with the change in almost all of the PATRP's main staff and the relocation from Kenya to South Africa.

Getting fully staffed was a challenge with the departure of the COP, DCOP and most of the previously identified staff within the first six months of the program. To compensate, Tetra Tech and Nexant deployed their respective home office managers to Pretoria to fill the void, and USAID approved the COP and DCOP candidates presented to USAID in January, and they were deployed quickly. As reported elsewhere, there were also challenges in filling certain transaction advisory positions such as in Kenya and Tanzania. In the latter case, deployment of a transaction advisor finally occurred in September 2015. PATRP is now fully staffed and the challenge moving forward will be expanding staff for the future.

7.1.2 Additions to the Work Plan

PATRP was also challenged in the requirements to deploy or divert resources, often under time constraints. Examples include the addition of geothermal energy as a principal work stream; the addition of transaction advisors to the East Africa Region, West Africa Region, Southern Region, and Djibouti as new work areas; support to NEPAD Africa Power Vision; the addition of resident technical advisors, as well as country transaction advisors in Nigeria (TCN), Tanzania (Rural Electrification Agency) and Ghana (gas); and follow-on requirements for legacy work streams from AIP in Nigeria, Ghana, and possibly other countries, to be transitioned and funded. PATRP has also provided more support than originally planned to the Coordinators Office. These additions were made to help Power Africa achieve the new Presidential objectives, but have also increased the burn rate significantly.

7.1.3 Delays in Achieving Results

On Objective 3 (Small-Scale Renewable Generation), PATRP presented USAID with a plan and targets to achieve SSRE objectives, but are behind on achieving these results. The original plan involved the main transaction advisors leading and coordinating teams to support achieving the promised results. The lack of an approved work order seriously hampers the design, planning and implementation of SSRE activities, and undermines PATRP's ability to achieve contracted targets.

One of the minimum expected requirements under the contract is to reduce technical, commercial, and collection (aggregate) losses by an average of 10 percentage points in at least one high-loss focus country (with aggregate losses greater than 30%). This work has not yet started.

7.1.4 Burdensome Administration

With respect to contract administration, as mentioned earlier, there are over 48 work orders issued under the contract. Since USAID has requested back-up material for all expenditures and invoices broken down by work order, the preparation of PATRPs invoices have become complex with significant time and effort required.

7.2 LESSONS LEARNED

7.2.1 Resident In-Country Advisors are Essential to Maintaining Real Momentum on Deal Flow

It has become clear that, wherever possible, it is preferable to maintain a resident in-country advisor rather than servicing transactions through short term technical assistance.

7.2.2 Role of the Transaction Advisor

Initially, PATRP envisioned its transaction advisors as playing an investment banker type of role, offering objective advice to deals in order to get them across the finish line. In certain cases, however, some Power Africa teams in different countries concluded that Power Africa advisors could be more effective if embedded within government ministries as a means of leveling the playing field with well-informed and well-funded developers, which informs the government and allows for advancing the program.

7.2.3 Ability of Transaction Advisors to Advance a Project Does Have its Limits

If there are barriers that cannot be removed with the assistance of the transaction advisor, it is imperative that the issue be elevated within Power Africa so that other channels of dialogue can be pursued at a policy or strategic level. A key example is the Azura IPP in Nigeria.

7.2.4 Need to Constantly Verify and Review PATT Contents

The initial data capturing for PATT was done under time pressure and without the opportunity to verify all key data being provided. Much of the data were taken from spreadsheets that had been used to track transaction progress. As a result, the accuracy of the data contained in PATT was not always reliable. This issue is now being addressed and a data quality assessment has been completed on PATRP-supported transactions. There is a continued need to maintain the accuracy of the data and ensure they are current – this will be done by proactive management and checking by the PATRP Project Management Unit based in Pretoria (which now includes an M&E specialist) in coordination with the transaction advisors in the field.

8 . MONITORING AND EVALUATION

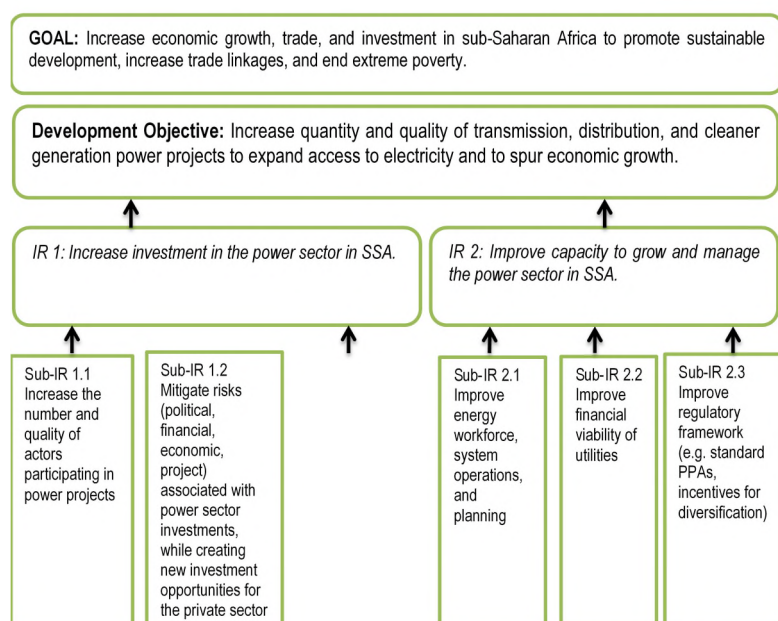
8.1 M&E FRAMEWORK

PATRP prepared a Performance Management Plan (PMP) to meet the requirements of Section C.6, Monitoring and Evaluation, of the contract. The PMP was originally submitted to USAID in July 2014, but was significantly revised in June 2015 and thereafter approved by USAID.

Since PATRP forms a part of USAID’s activities in the whole-of-government Power Africa Initiative, the monitoring and evaluation activities are based on the larger Power Africa Initiative results framework, which is graphically represented in Figure 12 and described in detail in the Power Africa Monitoring and Evaluation Plan. The Results Framework (RF) is a planning, communications and strategic management tool that conveys the development hypothesis implicit in the Development Objective (DO), illustrating the cause-and-effect linkages between outputs, IRs, and the DO to be achieved with the assistance provided. In the results framework for the DO, there is a set of related IRs and sub-IRs. In addition, sets of performance indicators are derived from the RF. The logic is that if the IRs are achieved, these results will contribute to accomplishing the higher-level DO and goal.

The Power Africa goal represents the highest level of impact to which USAID, the partner country, civil society and other development partners contribute. The DO is the most ambitious result that a unit can materially affect and is willing to be held accountable for, along with USAID partners. Intermediate results are measurable lower-level changes that individually contribute to jointly achieve the DO, and sub-IR is changes that contribute to the IR, if the critical/key assumptions hold. PATRP’s performance is tracked based on the DO and its related IRs, which in turn will be realized through sub-IRs achieved through the results-oriented activities of PATRP.

Figure 12. Power Africa Initiative Results Framework



Each of the eight intermediate and sub-intermediate results has a total of 15 associated performance indicators against which data for PATRP activities are collected to measure progress and determine whether implementation is on track. The performance indicators each have a completed performance indicator reference sheet that includes descriptions, a plan for data collection, targets and baselines at the PATRP level. These were presented to USAID for approval in 2015.

8.2 PATRP RESULTS

The results-level indicators in Table 8 refer to indicators of program results for FY 2015 that can be reasonably attributable to PATRP's efforts and for which PATRP can be held accountable. Generally, attribution exists when the causal linkages between program activities and the measured results are clear and significant. For PATRP, a result is attributable when the program can plausibly claim that without PATRP intervention, the result would not have occurred as it did. These indicators measure performance against the DO and IRs in the Results Framework and also serve as the basis for performance reporting to USAID.

A full breakdown of results by year and quarter can be found in Table 8.

Table 8: PATRP Actuals and Results for FY 2015

Indicator	Contract targets FY 2015 ¹³	Actuals FY 2015	Cumulative totals
Number of inferred connections from new generation	No target agreed.	0	0
Number of MW from transactions that have not yet achieved financial closure	2,000 MW	6,062.3 MW	9,754.80 MW
Number of transactions that have not yet achieved financial closure	70	41	60
Number of MW from transactions that achieved financial closure due to USG assistance	525 MW	660 MW ¹⁴	667.5 MW
Number of transactions that have achieved financial closure	6	2	3
Number of transactions that have been commissioned	No target agreed.	0	0
Number of private sector companies involved in transactions receiving services and support from USG agencies	60	179	187
Person hours of training completed in technical energy fields supported by USG assistance	480 person/hours	2,275 person/hours	2,275 person/hours
Number of policy reforms/laws/regulations/administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance.	3	42	42

¹³ Period covered by targets is 1 October 2014 – 30 September 2015. This varies from the contract year period; however, to allow for the reporting period to match the targets period, the targets for Year 1 of the contract have been used for FY 2015.

¹⁴ Does not include Tulila HPP (7.5 MW), which reached financial close late in FY 2014.

Table 9. Detailed Breakdown of PATRP Results for FYs 2014 and 2015

			Actual	Total	Actual FY 2015				Total	PATRP TOTAL
<i>Indicator Name</i>	<i>Indicator</i>	<i>Disaggregate By</i>	<i>Q4</i>	<i>FY 2014</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>FY 2015</i>	
Electricity Access	Number of new grid and off-grid connections directly supported with USG assistance	# of new on-grid	0	0	0	0	0	0	0	0
		# of new micro-grid	0	0	0	0	0	0	0	0
		# of new household	0	0	0	0	0	0	0	0
		# of new modern	0	0	0	0	0	0	0	0
Electricity Access	Number of inferred connections from new generation	Solar (in MW)	0	0	0	0	0	0	0	0
		Wind (in MW)	0	0	0	0	0	0	0	0
		Biomass (in MW)	0	0	0	0	0	0	0	0
		Hydroelectric (MW)	0	0	0	0	0	0	0	0
		Gas (in MW)	0	0	0	0	0	0	0	0
		Geothermal (MW)	0	0	0	0	0	0	0	0
Generation Capacity Pending Financial Closure	Number of MW from transactions that have not yet achieved financial closure	Solar (in MW)	5	5	100	494	147.5	1010	1751.5	1,756.5
		Wind (in MW)	200	200	0	436.8	0	0	436.8	636.8
		Biomass (in MW)	1	1	0	60	0	0	60	61
		Hydroelectric (MW)	21.5	21.5	0	280	245	0	525	546.5
		Gas (in MW)	2925	2925	0	400	714	1450	2564	5489
		Geothermal (MW)	540	540	570	155	0	0	725	1265
Transactions Pending Financial Closure	Number of transactions that have not yet achieved financial closure	Solar (in MW)	1	1	1	7	3	9	20	21
		Wind (in MW)	2	2	0	3	0	0	3	5
		Biomass (in MW)	2	2	0	1	0	0	1	3
		Hydroelectric (MW)	3	3	0	4	2	0	6	9
		Gas (in MW)	6	6	0	1	2	4	7	13
		Geothermal (MW)	5	5	2	2	0	0	4	9
Generation Capacity Reached Financial Closure	Number of MW from transactions that achieved financial closure due to USG assistance	Solar (in MW)	0	0	0	0	0	0	0	0
		Wind (in MW)	0	0	310	0	0	0	310	310
		Biomass (in MW)	0	0	0	0	0	0	0	0
		Hydroelectric (MW)	7.5	7.5	0	0	0	0	0	7.5
		Gas (in MW)	0	0	350	0	0	0	0	350
		Geothermal (MW)	0	0	0	0	0	0	0	0

			Actual	Total	Actual FY 2015				Total	PATRP TOTAL
<i>Indicator Name</i>	<i>Indicator</i>	<i>Disaggregate By</i>	Q4	FY 2014	Q1	Q2	Q3	Q4	FY 2015	
<i>Transactions Reached Financial Closure</i>	<i>Number of transactions that have achieved financial closure</i>	Solar (in MW)	0	0	0	0	0	0	0	0
		Wind (in MW)	0	0	1	0	0	0	1	1
		Biomass (in MW)	0	0	0	0	0	0	0	0
		Hydroelectric (MW)	1	1	0	0	0	0	0	1
		Gas (in MW)	0	0	1	0	0	0	1	1
		Geothermal (MW)	0	0	0	0	0	0	0	0
<i>Generation Capacity Commissioned</i>	<i>Number of MW that have been commissioned due to USG assistance</i>	Solar (in MW)	0	0	0	0	0	0	0	0
		Wind (in MW)	0	0	0	0	0	0	0	0
		Biomass (in MW)	0	0	0	0	0	0	0	0
		Hydroelectric (MW)	0	0	0	0	0	0	0	0
		Gas (in MW)	0	0	0	0	0	0	0	0
		Geothermal (MW)	0	0	0	0	0	0	0	0
<i>Transactions Commissioned</i>	<i>Number of transactions that have been commissioned</i>	Solar (in MW)	0	0	0	0	0	0	0	0
		Wind (in MW)	0	0	0	0	0	0	0	0
		Biomass (in MW)	0	0	0	0	0	0	0	0
		Hydroelectric (MW)	0	0	0	0	0	0	0	0
		Gas (in MW)	0	0	0	0	0	0	0	0
		Geothermal (MW)	0	0	0	0	0	0	0	0
<i>Regional Electricity Trade</i>	<i>New electricity capacity committed for regional trade through bilateral agreements</i>	Country X - Country Y	0	0	0	0	0	0	0	0
<i>Private Sector Partner Engagement</i>	<i>Number of private sector companies involved in transactions receiving services and support from USG agencies</i>	# of US firms	1	1	0	0	1	20	21	22
		# of non-US firms	7	7	0	3	0	155	158	165
<i>Utilization of Risk Mitigation Tools</i>	<i>Utilization of risk mitigation tools by developers of qualified transactions supported by Power Africa</i>	Partial risk guarantee	0	0	0	0	0	0	0	0
		Political risk Insurance	0	0	0	0	0	0	0	0
		Sovereign guarantee	0	0	0	0	0	0	0	0
		DCA guarantee	0	0	0	0	0	0	0	0

			Actual	Total	Actual FY 2015				Total	PATRP TOTAL
Indicator Name	Indicator	Disaggregate By	Q4	FY 2014	Q1	Q2	Q3	Q4	FY 2015	
		Put-call option	0	0	0	0	0	0	0	0
Training and Capacity Building Activities	Person hours of training completed in technical energy fields supported by USG assistance	Male (# of hours)	0	0	362.5	0	920	616	1898.5	1898.5
		Female (# of hours) trained	0	0	72.5	0	144	160	376.5	376.5
Kilometers of Power Lines Constructed or Rehabilitated	The sum of linear kilometers of new, reconstructed, rehabilitated or upgraded transmission and distribution lines that have been energized, tested and commissioned with USG support	Transmission	0	0	0	0	0	0	0	0
		Distribution	0	0	0	0	0	0	0	0
Substation Capacity Added	The total added transmission or distribution substation capacity, measured in mega volt-amperes that is energized, commissioned or accompanied by a test report and supervising engineer's certification	Transmission	0	0	0	0	0	0	0	0
		Distribution	0	0	0	0	0	0	0	0
Greenhouse Gas Emissions Reduced	Greenhouse Gas Emissions (GHG) estimated in metric tons of CO2e, reduced, sequestered and/or avoided as a result of USG assistance	Clean energy - funded activities	0	0	0	0	0	0	0	0
		Infrastructure - funded activities	0	0	0	0	0	0	0	0
Aggregate Losses	Total technical and non-technical electricity losses / total electricity generated	Total MWh generated	0	0	0	0	0	0	0	0
		Commercial losses in MWh	0	0	0	0	0	0	0	0
		Technical Losses in MWh	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0
National Energy Mix	% of MWs from clean energy technology	Hydroelectric (MW)	0	0	0	0	0	0	0	0
		Geothermal (MW)	0	0	0	0	0	0	0	0

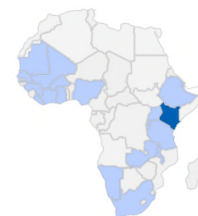
			Actual	Total	Actual FY 2015				Total	PATRP TOTAL
Indicator Name	Indicator	Disaggregate By	Q4	FY 2014	Q1	Q2	Q3	Q4	FY 2015	
		Wind (MW)	0	0	0	0	0	0	0	0
		Biomass Waste (MW)	0	0	0	0	0	0	0	0
		Solar (MW)	0	0	0	0	0	0	0	0
		Recovered Flared Gas	0	0	0	0	0	0	0	0
Policy	Number of policy reforms/laws/regulations/administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance.	Drafted	0	0	2	2	4	2	10	10
		Presented	0	0	2	2	4	2	10	10
		Regional	0	0	0	0	0	0	0	0
		National	0	0	2	1	4	2	9	9
		Private sector	0	0	0	2	4	2	8	8
		Clean and cleaner	0	0	2	1	2	0	5	5
		Small-scale and off-grid	0	0	0	0	0	0	0	0
		Gender equity	0	0	0	0	0	0	0	0
	Number of energy sector laws, policies, strategies, plans or regulations officially revised, adopted or implemented as a result of USG assistance that enhance energy sector governance and/or facilitate private sector participation and competitive markets, and/or encourage investment in clean and cleaner, small scale and off-grid options, and/or support gender integration in the energy sector.	Revised	0	0	0	0	0	0	0	0
		Adopted	0	0	0	0	0	0	0	0
		Implemented	0	0	0	0	0	0	0	0
		Regional	0	0	0	0	0	0	0	0
		National	0	0	0	0	0	0	0	0
		Private sector	0	0	0	0	0	0	0	0
		Clean and cleaner	0	0	0	0	0	0	0	0
		Small-scale and off-grid	0	0	0	0	0	0	0	0
		Gender equity	0	0	0	0	0	0	0	0

APPENDIX A: TRANSACTIONS - COUNTRY SUMMARIES¹⁵

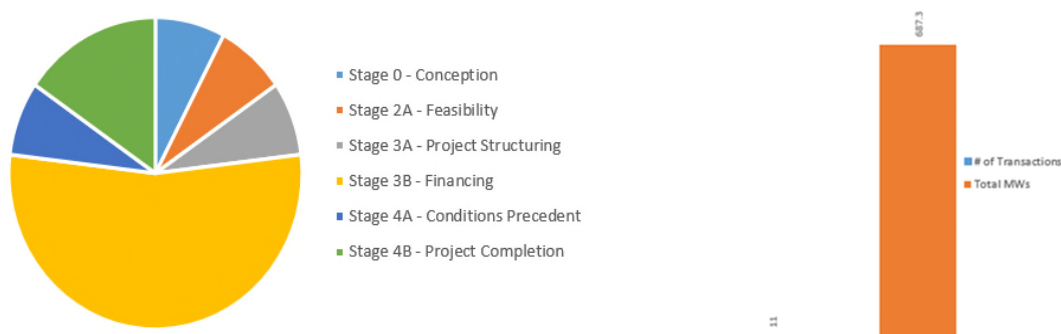
¹⁵ Although PATRP maintains a resident advisor in Liberia, as at the end of FY 2015, there were no PATRP transactions registered in PATT for Liberia. Accordingly, Liberia is not listed in this annex.

A.1 COUNTRY SUMMARY: KENYA

PATRP maintains one transaction and one technical resident advisor in Kenya. In addition, PATRP is performing grid management work through short-term technical assistance and also preparing a study on what pricing levels could be expected in Kenya in a competitive generation procurement.



Breakdown of Kenya transactions (including pipeline)¹⁶



List of Kenya generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MW
Kipeto--Wind	Kenya	Stage 3B - Financing	Wind	100
Tindinyo--Hydro	Kenya	Stage 3B - Financing	Hydro	1.5
Akiira--Phase 1--Geothermal	Kenya	Stage 3B - Financing	Geothermal	70
AGIL--Phase 1--Geothermal	Kenya	Stage 3A - Project Structuring	Geothermal	70
Menengai--Geothermal	Kenya	Stage 3B - Financing	Geothermal	105
Rumuruti--Solar	Kenya	Stage 3B - Financing	Solar	40
Grid Connected Hydro	Kenya	Stage 3B - Financing	Hydro	7.8
M-KOPA--Solar	Kenya	Stage 4A - Conditions Precedent	Solar	13
Kesses I--Solar	Kenya	Stage 3B - Financing	Solar	40
Way4orth	Kenya	Stage 0 - Conception	Solar	200
Xago Kogelo (MSOF)	Kenya	Stage 2A - Feasibility	Solar	40

¹⁶ This includes generation transactions that PATRP is currently supporting and other transactions that have been identified by transaction advisors, which are being considered for PATRP/Power Africa support. No transactions that have reached financial close, or are online were included.

A.2 COUNTRY SUMMARY: NIGERIA

PATRP technical advisors in the Nigerian power sector are implementing the following: 1) PATRP assists NBET in the negotiation of PPAs and other key project agreements for the projects identified by NBET as priority IPP projects, 2) PATRP's embedded transaction advisor at TCN manages a technical assistance program focused on transactions and institutional reforms, 3) PATRP maintains a resident transaction advisor who is working with the private sector to develop a program of USAID technical assistance to spur new private investment in the power sector, and 4) other institutional assistance.



Breakdown of Nigeria transactions (including pipeline) ¹⁷



List of Nigeria generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MW's
Afam Power--Gas	Nigeria	Stage 3B - Financing	Natural Gas	440
Pan Africa Solar	Nigeria	Stage 3A - Project Structuring	Solar	65
DuSable Capital / Motir--Solar	Nigeria	Stage 2B - Project Development	Solar	100
Azura / Edo--Gas	Nigeria	Stage 3B - Financing	Natural Gas	450
Century Power--Gas	Nigeria	Stage 3A - Project Structuring	Natural Gas	495
Exxon Mobil Qua Iboe (QIPP)--Gas	Nigeria	Stage 3B - Financing	Natural Gas	540
Ikot Abasi Power--Gas	Nigeria	Stage 3A - Project Structuring	Natural Gas	250
JBS--Wind	Nigeria	Stage 3A - Project Structuring	Wind	100
Nigeria Solar Capital--Solar	Nigeria	Stage 3B - Financing	Solar	100
Nova Solar Power	Nigeria	Stage 2B - Project Development	Solar	100
Abuja--Solar	Nigeria	Stage 1 - Pre-Feasibility	Solar	100
Proton Energy--Gas	Nigeria	Stage 3A - Project Structuring	Natural Gas	150
Abiba Solar / Quaint--Solar	Nigeria	Stage 2A - Feasibility	Solar	50
OMA Power	Nigeria	Stage 3A - Project Structuring	Natural Gas	500
LR Group	Nigeria	Stage 2B - Project Development	Solar	100
Yellowstone IPP	Nigeria	Stage 2B - Project Development	Natural Gas	350
Rook Solar Investment	Nigeria	Stage 2B - Project Development	Solar	100
Green Cowrie Energy Limited--Solar	Nigeria	Stage 2B - Project Development	Solar	150
Panyam Solar	Nigeria	Stage 3A - Project Structuring	Solar	70

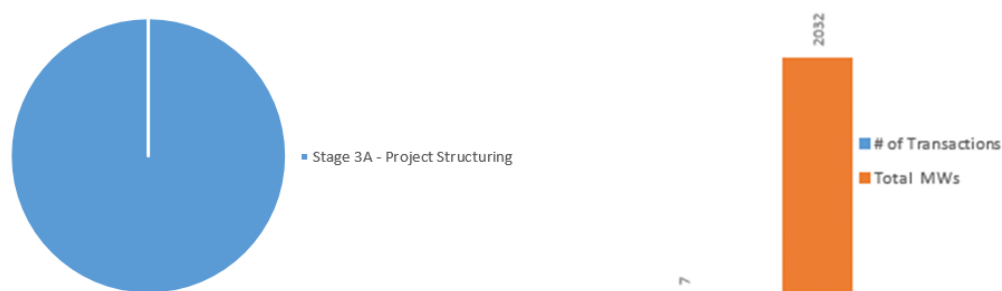
¹⁷ Supra footnote 11.

A.3 COUNTRY SUMMARY: GHANA

PATRP maintains a resident transaction advisor in Ghana, who is situated within the Ministry of Power. In addition, PATRP has deployed a resident gas advisor who provides technical and institutional support to the Ministry of Petroleum and the Energy Commission. In support of these activities, PATRP is also providing STTA to perform an electricity demand forecasting and suppressed demand estimation, gas market update, securitization and financial modeling and gas pricing framework study.



Breakdown of Ghana transactions (including pipeline) ¹⁸



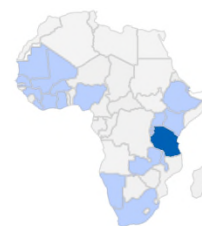
List of Ghana generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MW's
Ghana 1000--Gas	Ghana	Stage 3A - Project Structuring	Natural Gas	750
Siginik Energy / Episolar--Solar	Ghana	Stage 3A - Project Structuring	Solar	50
African Plantations for Sustainable Development (APSD)--Biomass	Ghana	Stage 3A - Project Structuring	Biomass	60
Mere Power Nzema /Blue Energy--Solar	Ghana	Stage 3A - Project Structuring	Solar	155
Upwind Ayitepa (Mainstream/Actis)--Wind	Ghana	Stage 3A - Project Structuring	Wind	225
Bridge (Fast) Power / Ghana 300--Gas	Ghana	Stage 3A - Project Structuring	Natural Gas	342
Aboadze -- Gas	Ghana	Stage 3A - Project Structuring	Natural Gas	450

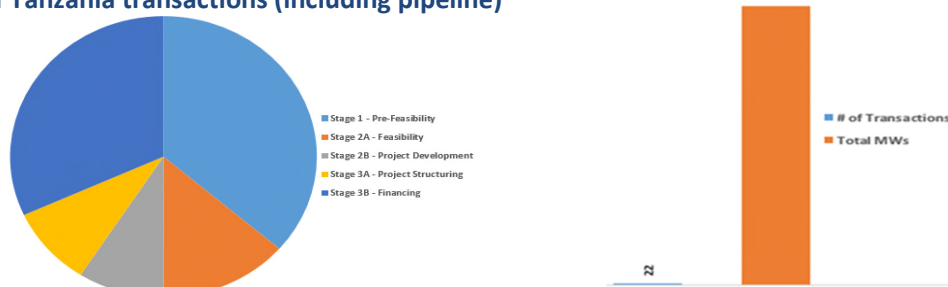
¹⁸ Supra footnote 11.

A.4 COUNTRY SUMMARY: TANZANIA

PATRP maintains a resident transaction advisor in Tanzania, who is based in the Investment Division of TANESCO. PATRP recently deployed a resident project manager to oversee the establishment and institutional development of an independent transmission system organization. It also retains a small-scale renewable transaction advisor, who is embedded within the Rural Energy Agency of Tanzania.



Breakdown of Tanzania transactions (including pipeline)¹⁹



List of Tanzania generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MWs
Kiwira River (East Africa Power Limited)--Hydro	Tanzania	Stage 3B - Financing	Hydro	10
NextGen / Kigoma--Solar	Tanzania	Stage 3B - Financing	Solar	5
Mapembasi / Njombe--Hydro	Tanzania	Stage 3A - Project Structuring	Hydro	10
Husk Power--Biomass	Tanzania	Stage 3B - Financing	Biomass	1
Lupali 317 kW small hydro project	Tanzania	Stage 3B - Financing	Hydro	0.317
Lupali 407 kW small hydro project	Tanzania	Stage 3A - Project Structuring	Hydro	0.407
Lupali 360 kW small hydro project	Tanzania	Stage 2B - Project Development	Hydro	0.36
Nakatuta 10 MW small hydro project	Tanzania	Stage 2B - Project Development	Hydro	10
Kinyerezi 1 (expansion)	Tanzania	Stage 3B - Financing	Gas	186
Kinyerezi 2	Tanzania	Stage 3B - Financing	Gas	240
Kinyerezi 3	Tanzania	Stage 2A - Feasibility	Gas	600
Kinyerezi 4	Tanzania	Stage 2A - Feasibility	Gas	330
Kilwa 1	Tanzania	Stage 3B - Financing	Gas	320
Kilwa 2	Tanzania	Stage 2A - Feasibility	Gas	300
Shinyanga Solar	Tanzania	Stage 1 - Pre-Feasibility	Solar	150
Makambako Wind	Tanzania	Stage 1 - Pre-Feasibility	Wind	100
Symbion	Tanzania	Stage 1 - Pre-Feasibility	Gas	300
Kakono HPP	Tanzania	Stage 1 - Pre-Feasibility	Hydro	87
Malagarasi HPP	Tanzania	Stage 1 - Pre-Feasibility	Hydro	44.8
Ruhudji HPP	Tanzania	Stage 1 - Pre-Feasibility	Hydro	480
Rumakariya HPP	Tanzania	Stage 1 - Pre-Feasibility	Hydro	500
UDOM Dodoma Solar	Tanzania	Stage 1 - Pre-Feasibility	Solar	55

¹⁹ Supra footnote 11.

A.5 COUNTRY SUMMARY: ETHIOPIA

PATRP maintains a resident transaction advisor in Ethiopia. In addition, and as part of grid management activities, PATRP is working to strengthen Ethiopia's power system for the integration of new generation (conventional and renewables) and for the sustainable and efficient operation of the national power grid for the delivery of quality and reliable electrical services to consumers. PATRP is also supporting EAPP (based in Ethiopia) with developing reliable interconnections of EAPP countries to facilitate power trading and the establishment of regional power market trading mechanisms.



Breakdown of Ethiopia transactions (including pipeline)²⁰



List of Ethiopia generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MWs
Corbetti Geothermal Phase 1--Geothermal	Ethiopia	Stage 3B - Financing	Geothermal	20
Corbetti Geothermal Phase 2--Geothermal	Ethiopia	Stage 3A - Project Structuring	Geothermal	50
Corbetti Geothermal Phase 3--Geothermal	Ethiopia	Stage 2B - Project Development	Geothermal	200
Corbetti Geothermal Phase 4--Geothermal	Ethiopia	Stage 2B - Project Development	Geothermal	200
Abaya & Tulumoya--Geothermal	Ethiopia	Stage 2A - Feasibility	Geothermal	500
Tams Hydro Project	Ethiopia	Stage 1 - Pre-Feasibility	Hydro	1700
Chemoga Yeda 1 and 2	Ethiopia	Stage 1 - Pre-Feasibility	Hydro	280
Geothermal Site 1	Ethiopia	Stage 1 - Pre-Feasibility	Geothermal	300
Wind Project 1	Ethiopia	Stage 1 - Pre-Feasibility	Wind	300
Wind Project 2	Ethiopia	Stage 1 - Pre-Feasibility	Wind	300
GTDC Solar	Ethiopia	Stage 2A - Feasibility	Solar	100
Solar Project 1	Ethiopia	Stage 1 - Pre-Feasibility	Solar	100
Solar Project 2	Ethiopia	Stage 1 - Pre-Feasibility	Solar	100
Thermal - Biomass	Ethiopia	Stage 1 - Pre-Feasibility	Biomass	420

²⁰ Supra footnote 11.

A.6 COUNTRY SUMMARY: DJIBOUTI

PATRP maintains a dedicated transaction advisor for Djibouti, who also oversees STTAs responsible for developing an IPP framework, which includes renewables, gas, and pipeline projects.



Breakdown of Djibouti transactions (including pipeline)²¹



List of Djibouti generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MW's
Petit Bara / Francolin / Fotowatio Renewable Ventures	Djibouti	Stage 3A - Project Structuring	Solar	50
Goubet Tadjoura--Wind	Djibouti	Stage 3A -Project Structuring	Wind	60

²¹ Supra footnote 11.

A.7 REGION SUMMARY: SOUTHERN AFRICA

PATRP maintains a transaction advisor who is resident in the South Africa region, and is currently servicing transactions in Namibia, Zambia, South Africa, Botswana and Malawi.



Breakdown of Southern Africa transactions (including pipeline)²²



List of Southern Africa generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MW's
Redstone Thermal--Solar	South Africa	Stage 3B - Financing	Solar	100
Kabompo--Hydro	Zambia	Stage 3B - Financing	Hydro	40
HE Power--Hydro	Malawi	Stage 3B - Financing	Hydro	41
Atlas Energy Solar PV--Solar	Malawi	Stage 3A - Project Structuring	Solar	40
Kudu Farm--Gas	Namibia	Stage 2B - Project Development	Natural Gas	880
Ample Solar--	South Africa	Stage 2A - Feasibility	Solar	150
Ngonye Falls--Hydro	Zambia	Stage 2A - Feasibility	Hydro	50
Kumi Zuba--Solar	Zambia	Stage 2A - Feasibility	Solar	100
Kalahari GeoEnergy--Geothermal	Zambia	Stage 2A - Feasibility	Geothermal	20
Luweya River--Hydro	Malawi	Stage 2A - Feasibility	Hydro	15
JCM Capital Solar PV--Solar	Malawi	Stage 2A - Feasibility	Solar	30
ERB Pilot REFIT Program--Solar	Namibia	Stage 2A - Feasibility	Solar	70
Erongo--Solar	Namibia	Stage 2A - Feasibility	Solar	10
Hardap--Solar	Namibia	Stage 2A - Feasibility	Solar	10
Otjozondjupa--Solar	Namibia	Stage 2A - Feasibility	Solar	10
GreeNam--Solar	Namibia	Stage 2A - Feasibility	Solar	30
Diaz--Wind	Namibia	Stage 2A - Feasibility	Wind	44
Electrawinds--Wind	Namibia	Stage 2A - Feasibility	Wind	50

²² Supra footnote 11.

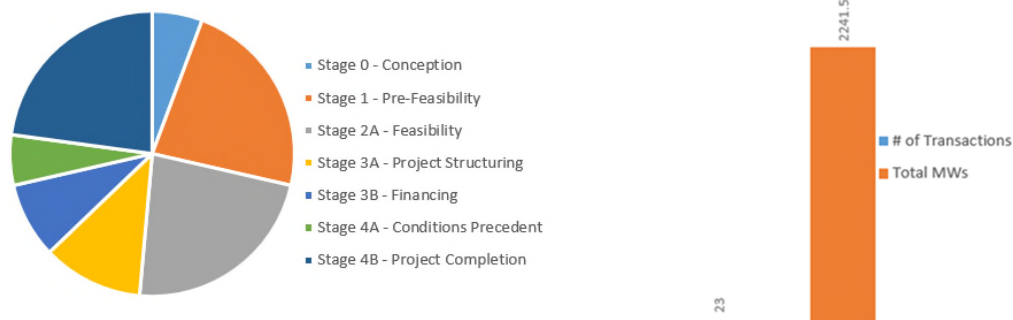
Name	Country	Stage--1, 2a, etc	Technology	MWs
VTB--Hydro	Namibia	Stage 2A - Feasibility	Hydro	30
Luapula - I--Hydro	Zambia	Stage 1 - Pre-Feasibility	Hydro	95
Luapula - II--Hydro	Zambia	Stage 1 - Pre-Feasibility	Hydro	125
Luapula - V--Hydro	Zambia	Stage 1 - Pre-Feasibility	Hydro	150
Luapula - CX--Hydro	Zambia	Stage 1 - Pre-Feasibility	Hydro	250
Luapula - M--Hydro	Zambia	Stage 1 - Pre-Feasibility	Hydro	80
Total/Western Power JV--Solar	Zambia	Stage 1 - Pre-Feasibility	Solar	50
Scaling Solar 1--Solar	Zambia	Stage 1 - Pre-Feasibility	Solar	50
Scaling Solar 2--Solar	Zambia	Stage 1 - Pre-Feasibility	Solar	50
Jaweng Mines / NW Region Power	Botswana	Stage 0 - Conception	Solar	100

A.8 REGION SUMMARY: EAST AFRICA

PATRP maintains a transaction advisor who is resident in Kigali, Rwanda and covers the East Africa region.



Breakdown of East Africa transactions (including pipeline)²³



List of East Africa generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MWs ²⁴
Gigawatt Global Burundi / Mubuga 7.5 MW--Solar	Burundi	Stage 2A - Feasibility	Solar	7.5
Semuliki Uganda / DRC--Hydro	DRC	Stage 0 - Conception	Hydro	72
Mugomba--Hydro	DRC	Stage 0 - Conception	Hydro	100
Rusumo--Hydro	Rwanda	Stage 4A - Conditions Precedent	Hydro	80
Rusizi 1 & 2 Refurbishment--Hydro	Rwanda	Stage 1 - Pre-Feasibility	Hydro	50
Akanyaru River (Rwanda & Burundi)--Hydro	Rwanda	Stage 2A - Feasibility	Hydro	25
Kivu Watt Phase 2	Rwanda	Stage 2A - Feasibility	Natural Gas	100
Symbion Methane	Rwanda	Stage 3B - Financing	Natural Gas	50
Nyabarongo2 Hydropower Plants	Rwanda	Stage 3A - Project Structuring	Hydro	110
Rwandan Mini hydro Program	Rwanda	Stage 3A - Project Structuring	Hydro	50
Bedden Hydropower Project	South Sudan	Stage 2A - Feasibility	Hydro	540
Lakki Hydropower Project	South Sudan	Stage 2A - Feasibility	Hydro	410
Shukoli Hydropower Project	South Sudan	Stage 2A - Feasibility	Hydro	325
Symbion Kabaale Peat--Biomass	Uganda	Stage 2A - Feasibility	Biomass	30
AEE--Geothermal	Uganda	Stage 1 - Pre-Feasibility	Geothermal	50
Berkley, Achwa, & Others--Hydro	Uganda	Stage 2A - Feasibility	Hydro	80
Simba Group , Solar Farm Development	Uganda	Stage 1 - Pre-Feasibility	Solar	10
IPS, SSRE in the West Nile Concession	Uganda	Stage 1 - Pre-Feasibility	Solar	10

²³ Supra footnote 11.

²⁴ For the majority of transactions listed, PATRP assistance is likely to be provided on the evacuation of power from generation plants. Thus, the attribution of generation MW to PATRP assistance on transmission side will need to be verified.

Name	Country	Stage--1, 2a, etc	Technology	MWs ²⁴
KIS Infrastructure Solar Plant	Uganda	Stage 1 - Pre-Feasibility	Solar	10
Mandulis Energy Biomass Gasification	Uganda	Stage 1 - Pre-Feasibility	Biomass	20
ERA GETFIT Secretariat 13 Plants	Uganda	Stage 3B - Financing	Hydro	50
MPower Biomass Plant	Uganda	Stage 3B - Financing	Biomass	12
USAID Mini-hydro Roll-out FS Studies	Uganda	Stage 1 - Pre-Feasibility	Hydro	50

A.9 REGION SUMMARY: WEST AFRICA (FRANCOPHONE)

PATRP has deployed a resident transaction advisor to the region, based out of Dakar, Senegal. The transaction advisor services projects principally in Francophone West Africa, to include: Burkina Faso, Benin, Guinea, Côte d'Ivoire, Mali, Senegal and Mauritania.



Breakdown of West Africa transactions (including pipeline)²⁵



List of West Africa generation transactions (including pipeline)

Name	Country	Stage--1, 2a, etc	Technology	MWs
Windiga Energy PV--Solar 20 MW	Burkina Faso	Stage 1 - Pre-Feasibility	Solar	20
Tahibli--Hydro	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Hydro	20
Songon Power--Gas	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Natural Gas	374
Tiboto--Hydro	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Hydro	225
Platinum Power Côte HD	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Other	210
Fello Sounga--Hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	82
Digan--Hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	93.3
Saltinho--Hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	19
Kouya--Hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	86
Aldwych International HD Kogbedou 44 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	44
Aldwych International HD Poudalde 130 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	130
Amaria 300 MW - hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	300
Balassa 181 MW - hydro	Guinea	Stage 1 - Pre-Feasibility	Hydro	181
Bamafelle 38 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	0
Bonkon Diara 174 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	174
Boureya 114 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	114
Diaoya 149 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	149
Diaragella 172 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	0
Doundouko 127 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	127
Fakarra 70 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	70

²⁵ Supra footnote 11.

Name	Country	Stage--1, 2a, etc	Technology	MWs
Fetore 124 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	124
Fomi 110 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	110
Gaoual - C 49 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	49
Gozoguezia 48 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	48
Gran Kingkon 291 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	291
Hakkaounde 84 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	84
Kassa B 118 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	118
Korafindi 100 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	100
Koukoutamba 292 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	292
Kouravel 135 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	135
Lafou 98 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	98
Madina Kouta 67 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	67
Mangoy 67 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	67
Morisananko 100 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	100
Netere 71 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	71
Souapiti 600 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	600
Tene 76 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	76
Tigeya 60 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	60
Tiopo 1 115 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	115
Tiopo 2 83 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	83
Tourdou 56 MW	Guinea	Stage 1 - Pre-Feasibility	Hydro	56
Contour Global Malarka--Hydro	Mali	Stage 2A - Feasibility	Hydro	10
Banda Gas-to-Power 180 MW	Mauritania	Stage 1 - Pre-Feasibility	Natural Gas	180
Taiba N'Diaye--Wind	Senegal	Stage 3A - Project Structuring	Wind	151.8
OMVG—Transmission*	Senegal	Stage 2A - Feasibility	Transmission	800
Senergy 1--Solar	Senegal	Stage 3A - Project Structuring	Solar	29
Rural electrification - Senegal concessions	Senegal	Stage 1 - Pre-Feasibility	Solar	0
EleQtra Wind / Leona 50 MW--Wind	Senegal	Stage 1 - Pre-Feasibility	Wind	50
Senegal FSRU unit in Dakar's port to replace HFO by LNG	Senegal	Stage 1 - Pre-Feasibility	Natural Gas	400
OMVS Manantali 11 T&D + HD	Mali	Stage 1 - Pre-Feasibility	Hydro	500

*Transmission line is expected to allow the evacuation of power generation; however, the MW value is to be confirmed.

APPENDIX B: PESRM CHECKLIST

APPROVAL FACESHEET

POWER AFRICA TRANSACTION AND REFORM PROGRAM (PATRP) PATRP ENVIRONMENTAL & SOCIAL REVIEW METHODOLOGY (PESRM) CHECKLIST ("PESRM CHECKLIST")

PROJECT NAME

CHECKLIST INFORMATION

Checklist and Supplemental Hydropower Checklist, if applicable, prepared by:	
Current date:	
Date of last PESRM checklist for this transaction, if applicable:	

TRANSACTION INFORMATION

Transaction/file name:	(PATRP Transaction Ref: TR-XX-00)
Country/region:	
Location (coordinates)	
Transaction parties:	
Transaction Stage:	
Is this a hydropower transaction?	
If yes, has the transaction been screened via the Checklist <u>and</u> Supplemental Hydropower Checklist?	
Is this screening based on an ESIA ²⁶ report for the transaction	<i>Insert full report reference if applicable: Author (Year) Title (as per title page). Client, city. Month, year of issue.</i>
Transaction Description:	
Changes since last PESRM checklist:	
Future changes expected	

N.B.: If the transaction is in Stage 1 and/or information is insufficient to complete the PESRM Checklist, please complete the PESRM Checklist to the best of your ability and note on this facesheet that the transaction will be rescreened when it progresses to a later stage and following any significant change, for example, in site or scope.

SUMMARY OF KEY ENVIRONMENTAL AND SOCIAL ISSUES IDENTIFIED:

[Provide a summary of the significant environmental and/or social issues identified in the most recent PESRM Checklist, paying particular attention to the following: sensitive habitat, physical-cultural resources, land tenure systems, involuntary resettlement, indigenous populations, conflict dynamics, and

²⁶ ESIA: environmental and social impact assessment

gender and social inclusion. Note if the transaction is associated with one or more parties that have no environmental and social soundness policies and procedures.]

Conclusion statement relating to key environmental and social issues:

- ☐ [no significant environmental or social issues associated with the project]
- ☐ [moderate to significant environmental or social issues that are expected to be fully mitigated as part of project development and implementation]
- ☐ [significant risk(s) that are not expected to be addressed during project development and/or implementation]

REQUIRED INTERVENTIONS:

[Based on the PESRM Checklist and the summary information noted above, describe the interventions that Power Africa will need to undertake, with proposed timeframes, and as appropriate, suggest who – e.g., the Transactions Team, Deputy Coordinators of Power Africa, Coordinator of Power Africa, and/or USAID Africa Bureau Environmental Officer – undertake the interventions.]

Conclusion statement relating to required interventions by Power Africa:

- ☐ [no further inquiry or deliberation is required by Power Africa; however, monitoring shall continue as the project is developed and implemented]
- ☐ [inquiry and deliberation is required by Power Africa which is expected to ensure environmental and social issues are fully addressed; monitoring shall continue as the project is developed and implemented]
- ☐ [inquiry and deliberation and monitoring is required by Power Africa; however, even with these interventions it is unsure if the environmental and social issues will be fully addressed.]

RECOMMENDATION FOR POWER AFRICA SUPPORT:

Based on the findings of the PESRM Checklist and the summary information presented in this facesheet, the following is recommended:

- ☐ [that Power Africa support (or continue to support) this transaction]
- ☐ [that Power Africa not support (or continue to support) this transaction]
- ☐ [that sufficient information is not available to make a recommendation and that the information be obtained promptly and the Checklist and Facesheet be updated with an appropriate recommendation]

APPROVAL/CLEARANCES FOR POWER AFRICA TRANSACTION AND REFORM PROGRAM (PATRP) PATRP ENVIRONMENTAL & SOCIAL REVIEW METHODOLOGY (PESRM) CHECKLIST

PROJECT NAME

USAID/Power Africa Clearance:

Power Africa Coordinator or his/her Designee

Name: Date: _____

PATRP COR

Name: Date: _____

Power Africa Environmental Officer/Advisor

Name: Date: _____

USAID/Bureau for Africa Clearance:

Regional Environmental Officer/Advisor

Name: Date: _____

PATRP Clearance:

Chief of Party

Name: Date: _____

ATTACHMENTS

- ✓ PESRM Checklist
- ✓ Supplemental hydropower checklist

Figure 1: Locality map [Source: XXX, YEAR]

Figure 2: Project site layout plan [Source: YYYY, YEAR] *(where available)*

File name/location: _____

ATTACHMENT 1 – PESRM CHECKLIST

PROJECT NAME

Purpose: This PESRM Checklist is being prepared in accordance with the Initial Environmental Examination (IEE) issued in March 2015 for the Power Africa Transaction and Reform Program (PATRP)²⁷. The IEE requires that for USG-Supported Transactions for which no USG agency, IFI or MDB is conducting such screening, Power Africa, through the Environmental and Social Adviser(s) to PATRP, will conduct the environmental/social impact screening by completing the “Power Africa Environmental and Social Review Methodology” (PESRM) Checklist (screening tool) and accompanying Approval Facesheet.

Checklist Tables: There are two tables that follow. The first is the PESRM Checklist. The second table is the Supplemental Hydropower Checklist. This latter table is required by the IEE²⁸ which states that PATRP shall perform environmental and social impact screening, via the PESRM Supplement, on all hydropower USG-Supported Transactions that are not otherwise screened by a Power Africa USG Agency.

Qualitative risk rating: In the tables that follow, the qualitative risk rating applies to the risk to *Power Africa*, after environmental and social impacts and management plans – as represented in the project ESIA - have been taken into consideration.

Risk Rating (RR) Scheme: The Risk Rating (RR) Scheme appearing in the tables is as follows:

Very High (VH) = Irreversible; residual impact after mitigation

High (H) = Amenable to mitigation and offset options, which are likely to be feasible

Moderate (M)

Low (L)

+ = Positive (risk mitigating, e.g., strong regulatory framework and enforcement)

N/A = Not applicable

INA = Information not available

Guidelines and instructions in RED in the checklist are to be deleted when preparing the project checklist.

²⁷ March 2015 Initial Environmental Examination for Power Africa Transaction and Reform Program (PATRP), p. 23

²⁸ Ibid. Section 4.5 Condition 9, p. 29-30

No.	Category/ Criterion	Analysis	Risk Rating	Proposed Follow-up Actions by PATRP/ Power Africa
1	Developer/ Partner Credentials			
1.1	Name/s of all major partners in the transaction		N/A	
1.2	Is the developer an official Partner of Power Africa? Has it been subjected to the PA partner due diligence process?			
1.3	Does the developing entity contain at least one well-established (>5 years), large, reputable company?			
1.4	Is there documented evidence of commitment to sustainable practices?			
1.5	Is it a signatory to any industry or international commitments to human rights, land rights or declarations on environmental sustainability, etc.?			
1.6	Does the developer/partner have policies to promote gender equality in the workplace?			
1.7	Does the developer/partner have women on their board and/or in their executive/senior management?			
1.8	Has the transaction partner(s) been associated with any illegal practices/ violations of human rights and/ or corruption?			

1.9	Is the developer compliant with USAID's Child Safeguarding Policy (https://www.usaid.gov/sites/default/files/documents/1864/200mbt.pdf)?			
2.	Nature of the Project [NO RISK RATING – DESCRIPTIVE ONLY]			
2.1	Technology type and scale (MW); location (coordinates, if available)		N/A	
2.2	Listing of components to be included in “the transaction” <i>[include transmission line details if applicable]</i>	<i>[For hydropower projects, insert only basic information throughout this section and put detail into the Supplemental Hydropower Checklist]</i> • •	N/A	
2.3	Approximate land and water area required for development, and area of land concessioned to developer, if applicable	<i>[e.g., for wind farms and geothermal power plants, large concession areas may be granted that are far larger than the initial project footprint]</i>	N/A	
3	Governance Framework			
3.1	Does the country have an environmental authorization/ approval (EA) process?			
3.2	Does the EA process apply to this project?			
3.3	What is the status of the permitting process, [in progress/ approved]?	<i>If Approved, given year of approval and attach permit/ certificate if available. If ‘in progress’, give scheduled month for completion and approval, if possible</i>		
3.4	Does the country have regulated emissions and/ or environmental quality limits/ standards for water, air, noise?	•		

3.5	Have international best practice procedures (Equator Principles and/ or IFC Performance Standards (PSs)) been applied?			
3.6	Are guidelines for international best practice in environmental aspects related to this technology type available?			
3.7	What would the project most likely be classified as, in terms of IFC or Equator Principles Categories A, B or C?	.		
3.8	Have specific lenders to the project been identified?	<i>[Entity names]</i>		
3.9	Do they have specific E&S requirements other than the Equator Principles/ IFC PSs?	<i>[List]</i> •		
4	Land			
4.1	Does national law accurately recognise and effectively protect legitimate land rights, including customary rights and informal tenure, of individuals and groups? Is the law effectively applied?			
4.2	What records exist that document land rights in the project area (e.g. is there an up to date registry that covers most of the land)? Do they document customary and secondary rights? What rights are undocumented?			
4.3	Is there a legally defined process for acquiring land/ right to use land, and a land registration system in place? Is the process the same for women and men?			

4.4	Is there an active land market in the project area/country that can be used to estimate fair land prices? If not, what process would be used to estimate land prices?			
4.5	Is there a regulatory authority controlling land acquisition/ use?			
4.6	Are the land tenure laws non-discriminatory and provide specific protection and equal rights for all groups including women, pastoral groups, indigenous peoples, and other vulnerable groups?			
4.7	What is the land tenure system(s) on the designated land (including the possibility of multiple tenure systems)?			
4.8	Is the project likely to result in the alienation or restriction of access to land legitimately held or used by local people, either through individual ownership or under communal ownership structures?			
4.9	Is there a recent history (past 50 years) of involuntary resettlement and successive loss of communal land in the project area?			
4.10	Could the project worsen existing land tenure conflicts or violence in the area?			
4.11	Where a project is anticipated to alter land access/ownership, have all alternatives to involuntary resettlement been considered?			

4.12	Does the project use the minimum land resources needed in order to avoid or at least limit the physical and/or economic displacement of local people?			
4.13	What ways is the project exploring to involve local people in the project design such that they actively support the project, including benefit-sharing arrangements such as leasing land from local people, profit-sharing, etc.?			
5	Environmental			
5.1	Is the site in or adjacent to a legally protected area (WHS/ national park/ nature reserve)?			
5.2	Will any sensitive habitats (outside of protected area) be affected by the project? E.g. coastal rocky shore, coral reef, wetland, riparian area, river, tropical/ rain forest			
5.3	Is the site in a known biodiversity hotspot/ species-rich region/ area, i.e. is important biodiversity likely to be affected by the project? Will known habitats of IUCN Red-listed/ rare and endangered species be affected by the project?			
5.4	If biodiversity will be affected, are suitable options for biodiversity offsets available?			
5.5	If not, is the goal of “no net loss to biodiversity” achievable?			

5.6	Will the project generate water, air and/or soil pollution?			
5.7	Will project emissions reach and affect any sensitive receiving environments?			
5.8	Will the project affect downstream reaches beyond 1 km of a river?			
5.9	Will the project generate greenhouse gases? Are GHG emissions likely to exceed 25000 t CO ₂ e/year?			
5.10	Could project GHG reduction strategies be eligible for carbon credits?			
5.11	Will the project have trans-boundary effects?			
5.12	Are there cumulative impact issues associated with the project?			
5.13	Have management plans been formulated: <ul style="list-style-type: none"> • to manage the impacts of construction; • to mitigate the impacts on biodiversity and ecosystems, • to control emissions and effluents; • to manage wastes? 			
6	Social/ Cultural/ Political/ Economic			
6.1	Will any sites of heritage value be affected?			
6.2	Will any sites of contemporary cultural significance be affected?			

6.3	Are any dispersed rural households located on the site or adjacent to it (within 1 km radius)?			
6.4	Will any villages or towns be directly affected by the project? Are any such settlements located within a 5 km radius of the project site/sites?			
6.5	Will pastoralists or other local people be affected, for example, by the project making them no longer using their land in traditional, customary ways? Will their land or natural resource rights (including customary or temporary tenure systems) be infringed upon in any way? If so, are impacts on women distinguishable from those of men?			
6.6	Are any homesteads/ dwellings/ community infrastructure likely to require (involuntary) resettlement?			
6.7	Are any land users likely to suffer economic displacement? If so, are the impacts between men and women engaged in economic activities distinguishable?			
6.8	Are project emissions likely to pose a significant risk to human health?			
6.9	Will the project affect any 'indigenous' groups (as per IFC PS7 definition)? If so, are impacts on indigenous women distinguishable from those of men?			

6.10	Have any affected parties/ local communities been consulted/ informed about the project?			
6.11	Are any advocacy NGOs and/ or international environmental NGOs known to be active in the project area?			
6.12	Are there action/ management plans in place to mitigate the social impacts of construction and operation, including the influx of migrant labor?			
6.13	If applicable, has a full resettlement action plan been developed?			
7	Vulnerable Groups			
7.1	Does the country have a national gender policy or framework?			
7.2	Do the country's land tenure laws provide specific protection and equal rights for women?			
7.3	Were vulnerable groups particularly women included as a separate group in project consultations, and were their issues reported?			
7.4	Are women, youth or other vulnerable groups likely to be affected? Have project impacts been analyzed in such a way as to identify impacts to vulnerable groups specifically?			
7.5	Are plans in place to minimize risks of the project directly or indirectly contributing to the use of child labor?			

7.6	Are plans in place to mitigate and manage impacts on vulnerable groups?			
8	Country Risk [NO RISK RATING – INFORMATION FOR QUALIFICATION ONLY]			
8.1	Does the country have a stable government? Does it have a universal franchise system?		N/A	
8.2	Does the country have a recent history of violent conflict, social conflict and/or of violations of human rights? If yes, is a recent conflict assessment available to inform the design of conflict-sensitive/Do No Harm approaches and provide contextual information on the dynamics of conflict and peace?		N/A	
8.3	What is the country's ranking on international corruption indices?		N/A	
8.4	Is the country home to a large number of ethnic groups and/ or religions?		N/A	
8.5	Does the country have specific laws and policies protecting the rights of women?		N/A	
8.6	What is the prevalence (nationally and in project areas) of child labor, and particularly the worst forms of child labor, as defined by ILO?			
8.7	Are labor practices in the country consistent with human rights standards?		N/A	
8.8	Does the country have a vigorous civic sector?		N/A	
8.9	Has there been a history of conflict between communities/ ethnic groups		N/A	

	and central government? Is this known to have occurred in the region where the project is to be located?			
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ATTACHMENT 2 - PATRP PESRM SUPPLEMENTAL HYDROPOWER CHECKLIST

HYDROPOWER – [Project Name]

No	Category/ Criterion	Analysis	Risk Rating	Proposed Follow-up Actions by PATRP/ Power Africa
H1	Nature and Scale of the Project [NO RISK RATING – DESCRIPTIVE ONLY]			
H1.1	Define the size of the project: <ul style="list-style-type: none"> • ≤ 10 MW • > 10 < 50 MW • ≥ 50 MW 	≤ MW	N/A	
H1.2	Is it described as a run-of-river project?		N/A	
H1.	If yes, does it involve an impoundment, and what height of wall will be built?		N/A	
H1.3	How many days' of water storage (i.e., how many days of turbine throughput) are to be impounded?		N/A	
H1.4	How high a wall and how large an impoundment is required (height of the wall; approx. surface area of the dam)? [Approximate total land and water area required for development.]		N/A	
H1.5	If the project involves diverting water flow from out of the normal river channel, provide the length of river reach affected by diversion.		N/A	

H1.6	Will this result in complete cessation of flow over the affected river reach? If not, what percentage flow will be diverted?		N/A	
H1.7	What infrastructure will be constructed outside of the river channel? How much land surface area is required?		N/A	
H1.8	What will be constructed underground?		N/A	
H1.9	If it's a large dam ²⁹ hydropower project, are downstream run-of-river projects and other water resource projects planned that are dependent on the dam? Is there a potential for multi-purpose use, e.g., water release for downstream irrigation to replace floodplain recession agriculture?		N/A	
H1.1 1	Are there other existing or planned water resource development projects in the river basin independent of THIS project?		N/A	
H2	Environmental: River Flow Regime and Biota			
H2.1	What percentage of the river basin's mean annual runoff (MAR) will be stored in the impoundment?			

²⁹ The World Bank defines a "large dam" as anything with a wall height of over 15 m, but here it is storage capacity that is being referred to. While there is no universal definition of a "large dam," it can be taken to mean any structure capable of storing the maximum annual flood, that is, it will eliminate all normal flood flows from downstream reaches and interfere with the annual flow regime of the river downstream.

H2.2	What % of the river's dry season base flow will be diverted (run-of-river projects)?			
H2.3	Will the project significantly affect seasonal flow patterns beyond 1 km in the river downstream of the project infrastructure?			
H2.4	Will the volume of flow reporting downstream from the tailrace result in hugely <i>increased</i> flows downstream, with consequent potential for high rates of erosion?	.		
H2.5	Is there a high sediment load in existing river flows, and could this compromise the functionality and longevity of the scheme?			
H2.6	Is the site in or adjacent to a legally protected area (WHS/ national park/ nature reserve), or an important tourism or scenic area, or is there such an area downstream of the project that would be adversely affected by it?	.		
H2.7	Will the project severely adversely affect any rare or unique ecosystem or endemic plant and/or animal species (e.g., 'cloud' forest dependent on waterfall mist; mist frogs; moist-cliff-dwelling species)			
H2.8	Will the project interfere with or disrupt migration of important fish species upriver?			

H2.9	Will the project cause a reduction or cessation of flooding to important floodplains or wetlands downstream?			
H2.10	Is the project likely to cause a reduction in wetland area or habitat for important biodiversity?			
H2.11	Will the project have biophysical trans-boundary effects?			
H2.12	Is there a potential for significant biophysical cumulative effects?			
H2.13	Is there an important coastal fishery dependent on the river delta that would be adversely affected by river basin developments?			
H2.14	Will the project open up a previously inaccessible region, making it vulnerable to induced impacts from immigration such as exploitation of natural resources?			
H3	Social/ Cultural/ Political/ Economic			
H3.1	Has the local community been involved in impact assessment or mitigation planning? If so, have women, children, indigenous people, and other vulnerable populations specifically been included in this process?			
H3.2	Will any villages or towns be flooded and require relocation? Will the project put any villages or towns at greater risk of being flooded during wet seasons?			

H3.3	Will the construction of land-based infrastructure require relocation of villages/ homesteads, or compromise the structural integrity of buildings (due to blasting)?			
H3.4	Is an estimate available of the number of homesteads/ population that will have to be relocated?			
H3.5	Will inundation of the dam basin result in loss of significant natural resources that are critical to a subsistence economic system/ livelihood strategies?			
H3.6	Is alternative land available to compensate for such losses?			
H3.7	Has special attention been paid to ensure women receive equal compensation and access to developmental resources?			
H3.8	Will the project impact any existing land rights or water rights, either in the dam basin or downstream??	<i>[eg loss of floodplain recession agriculture; Loss or diminution of fish resources; deterioration of important tourism areas.]</i>		
H3.9	Is there a potential for cumulative effects on the land rights and access to natural resources of local communities?			